UNIT-5

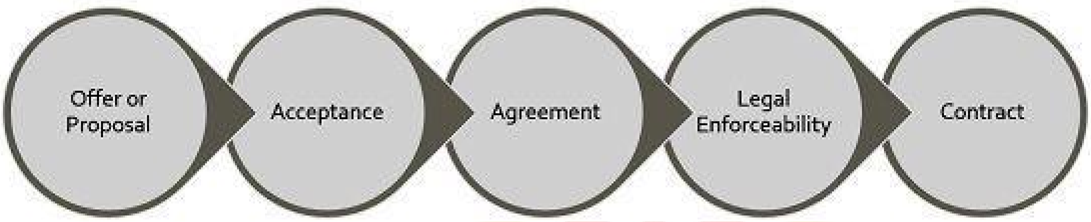
CONTRACTS & VALUATION

I. CONTRACTS

I. CONTRACTS DEFINATION:

The term contract is defined as an agreement between two or more parties which has a binding nature, in essence, the agreement with legal enforceability is said to be a contract. It creates and defines the duties and obligations of the parties involved.

Process of Contract



First and foremost, an offer is made by one party to another, which when accepted by the party to whom it is made, leads to the agreement. If that agreement is enforceable in the court of law, it is known as a contract.

Essential Elements of a Contract

Agreement: The primary element that creates a contract between parties is an agreement, which is a result of offer and acceptance, that forms consideration for the parties concerned.

Free Consent: Consent of the parties is another important aspect of a contract, which means the parties entering into the contract, must agree upon the same thing in the same sense. The consent of the parties is said to be free when it is not influenced by coercion, undue influence, fraud, misrepresentation and mistake.

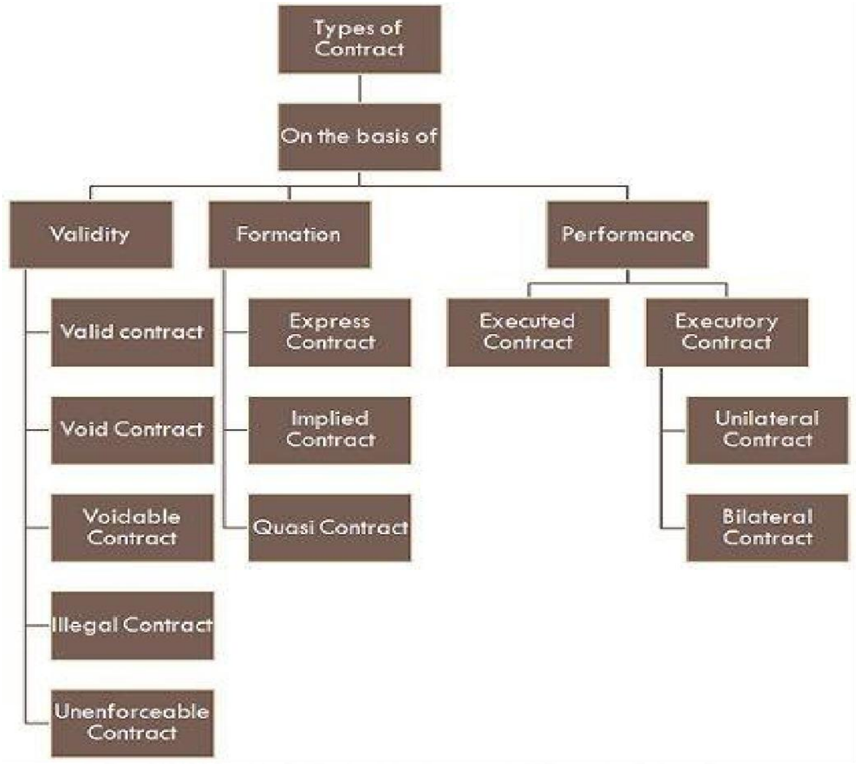
Competency: Competency refers to the capacity of the parties to enter into the contract, i.e. he/she has reached the age of maturity, he/she must be of sound mind, and he/she is not disqualified from contracting, as per the law like the alien enemy, foreign sovereigns, etc.

Consideration: It implies the price agreed to be paid for the promise's obligation by the promise. It must be adequate and lawful.

Lawful object: The object for which the contract is created must be lawful, or else it is declared as void.

Not expressly declared as void: The law should not expressly declare the contract as void, such as contract in restraint of marriage, trade or legal action

II. Types of Contract



1) On the basis of validity

1. Valid Contract: An agreement which is enforceable by law, is a valid contract.
2. Void Contract: The contract which is no longer enforceable in the court of law is a void one.
3. Voidable Contract: A contract in which one of the parties to the contract has a choice to avoid performing his/her part, then it is termed as a voidable contract.
4. Illegal Contract: A contract which is forbidden by law is termed as an illegal contract.
5. Unenforceable Contract: The contract whose substance is good, but due to some issues, it is not enforceable, is called an unenforceable contract.

2) On the basis of formation

1. Express Contract: When the terms of the contract are expressed orally or in writing, it is known as an express contract.

2. Implied Contract: The contract which is constituted by implication of law or action, is an implied one.

3. Quasi-Contract: These are not a real contract, but are identical to a contract, which is formed out of some circumstances.

3) <u>On the basis of Performance</u>

1. Executed Contract: When the contract is performed, it is known as an executed contract.

2. Executory Contract: When the obligation in a contract, is to be performed in future, it is described as an executory contract.

a) Unilateral Contract

b) Bilateral Contract

III. <u>CONTRACT DOCUMENT</u>

Def: Contract Document is the written documents that defines the basis of contract consisting of both parties' roles, responsibilities, and detailed description of the work or service such as drawings, specifications, procedures, any other conditions, as well as the commercial information including the prices agreement, payment conditions, etc. The Contract Document should include sufficient information to be able to complete the work or service.

<u>CONSTRUCTION CONTRACT DOCUMENTS</u>

The required contract documents for any building work as per the National Building Code (2006) are - (or) Essential Construction Contract Documents for Every Project are

1.Contract drawings and specifications

2.Priced bill of quantities

3.Construction programme

4.Project quality management plan

5.Project health and safety plan

6.Conditions of contract

7.Risk insurance

1. Contract Drawings and Specifications

The contract drawings include the architectural drawings, the structural/geotechnical engineering drawings, and the building services engineering drawings. These drawings provide information regarding the arrangement of spaces, structural components, electrical, mechanical and plumbing installations etc.

Specifications simply amplif the information given in the contract drawings and bill of quantities. It describes in details the work to be executed under the contract and the nature and quality of materials, components, and workmanship.

2. Priced Bill of Quantities

A priced Bill of quantities is a required document of contract that has its rate and amount column filled by a contractor. A bill of q consists of a schedule of items of work to be carried out under the contract with quantities entered against each item, prepared in accordance with the Standard Method of Measurement of Building Works (Seeley and Winfield, 2005)

3. Construction Programme

This is a document that is prepared in order to provide the project participants a thorough appreciation of the work involved, to allow the site production team to sort out its main constituent and decide.

4. Project Quality Management Plan

The Project Quality Management Plan defines the various quality related activities and procedures which will be implemented on the project. It sets down requirements, gives guidelines, provides information and indicates to appropriate personnel, the procedures to be followed with respect to the Project Quality Management Plan. A sample outline of the Project Quality Management Plan is to in the appendix.

5. Project Health and Safety Plan

The Project Health and Safety Plan is a document developed to secure the health, safety and welfare of persons who will work or visit the site. It was also developed to control the emission of toxic substances into the atmosphere and control the keeping and use of substances that might be hazardous to health. An outline of the Project Health and Safety Plan is delineated in the appendix.

6. Conditions of Contract

The conditions of contract define the terms, under which the work is to be undertaken, the relationship between the client, architect and contractor, the duties of the architect and contractors, and the terms of payment. (Seeley and Winfield, 2005)

7. Risk Insurance
This is a contract document which shows that all the personnel and equipment associated with a construction project have been insured against loss or damage. By insurance, all the

risks associated with personnel and equipment in a construction project is transferred to a third party.

IV. Conditions of a Contract

The Following are the contract conditions used in construction

1. Security Deposit (An Important Condition of Contract)
2. Compensation for delay
3. Extension in Time Limit
4. Completion Certificate
5. Payment on Certificate
6. Work at Night and Holidays
7. Inferior Materials and Workmanship
8. Departmental Materials
9. Extra Items and Its Payments
10. Measurement and Payment to Contractor
11. Commencement of Work According to Drawing and Specifications
12. Additions and Alterations
13. Subletting
14. Breach of Contract
15. Labour Laws
16. Compensation in Case of Bad Work
17. Maintenance Period
18. Supervision by Higher Officers
19. Suspension of Work

V. VALUATION

Valuation of Building – Methods and Calculation of Valuation

I) Valuation of building or property is the method of calculating the present marketable cost of a building.

II) Valuation of a building depends on the sort of building, its structure, durability, location, size, shape, the width of roads, frontage, types and quality of building materials used and the cost of these materials.

III) Valuation of a building also depends on the height of the plinth, height of the building, thickness of its walls, nature of structure (such as load bearing or framed structure), type of flooring, roofing, doors and windows etc.

METHODS OF VALUATION OF BUILDINGS AND PROPERTIES

Following are the different methods of valuations of the property:

1. Rental Method of Valuation
2. Direct comparison with capital value
3. Valuation based on profit
4. Valuation based on cost
5. Development method of valuation
6. Depreciation method of valuation

1. Rental Method of valuation

In this method, net income from the building is calculated by deducting all the outgoings fromgross rent. Year's purchase (Y.P.) value is calculated by assuming a suitable rate of interest. prevailing in the market.

2. Direct Comparison with Capital Value

When the rental value is not known, this method of direct comparison with the capital value of asimilar property of the locality is used. In this case, the valuation of the property is fixed by direct comparison with the valuation or capitalized value of similar property in the locality.

3. Valuation based on Profit

This method of valuation is suitable for commercial properties such as hotels, restaurants, shops, offices, malls, cinemas, theaters etc. for which the valuation depends on the profit. In such cases, the net annual income is used from the valuation after deducting all the outgoings and expenses from the gross income. The valuation of building or property is found by multiplying the net income by year's purchase. The valuation, in this case, can be too high in comparison with the actual cost of construction.

4. Valuation based on Cost

In this case, the actual cost of construction of the building or the cost incurred in possessing the building is considered as the basis to determine the valuation of the property. In this case, necessary depreciation is allowed and points of obsolescence are considered.

5. Development method of valuation

This method is suitable for properties which are under the developmental stage. For example, if a large place of land is to be divided into plots after provision for roads and other amenities, this metho is used.

6. Depreciation Method of Valuation

If a large place of land is to be divided into plots after provision for roads and other amenities, this method is used.

Based on the depreciation method, the valuation of the buildings is divided into four parts:

1. Walls
2. Roofs
3. Floors
4. Doors and windows

Cost of each part at the present rate is calculated based on detailed measurement. The life of each part is calculated by the formula:

$$D = P\,[(100 - rd)/100)]n$$

where,

D = depreciated value

r = rate

d = depreciation

n = age of building in years

VI. STANDARD SPECIFICATION FOR DIFFERENT ITEMS OF BUILDING

In a Building we have discuss about all structural elements which are:

1.Excavation work

2.CC Bed

3. Foundation

4.Plinth Beam

5.Columns

6.Beams 7.Slabs

8.Superstructure (Wall)

9.Plasterimg

10.D.P.C

Contracts Introduction

- A contract is a legally Binding document that recognizes and governs the rights and duties of the parties to the agreement.
- A contract is legally enforceable because it meets the requirements and approval of the law.
- A contract typically involves the exchange of goods, service, money, or promise of any of those.
- An agreement between two private parties that creates mutual legal obligations.
- A contract can be either oral or written.
- Contract, in the simplest definition, a promise enforceable by law.
- A voluntary, deliberate, and legally binding agreement between two or more competent parties.

<u>CONTRACTOR:</u>

- A person or a firm who undertakes any type of contract.
- Contractor means private individuals partnership firm, public or private limited concerns who have made such an undertaking for concerned therewith with the respective govt. the execution of works or supply of materials or for services.
- A general contractor is responsible for providing all of the material, labor, equipment (such as engineering vehicles and tools) and services necessary for the construction of the project.
- A general contractor often hires specialized subcontractors to perform all or portions of the construction work.

<u>ARRANGING CONTRACTOR:</u>

- ✓ Contract for a work is arranged by inviting sealed tenders, by issuing tender notices.
- ✓ An agreement
- ✓ Between two or more parties
- ✓ Recognized by law
- ✓ Enforceable through the courts.

<u>TYPES OF CONTRACTS:</u>

- Lump sum contract
- Lump sum and schedule contract

- Schedule contracts or Item Rate contract

- Labour contract
- Target contract
- Materials supply contract
- Piece-Work agreement
- Cost Reimbursement Contracts
- Cost plus fixed fee contract
- Cost plus percentage contract
- Cost plus fluctuating fee contract
- Percentage rate contract

LUMP SUM CONTRACT:

- ✓ A lump-sum contract is normally used in the construction industry to reduce design and contract administration costs.
- ✓ It is called a lump-sum because the contractor is required to submit a total and global price instead of bidding on individual items.
- ✓ A lump-sum contract is the most recognized agreement form on simple and small projects and projects with a well-defined scope or construction projects where the risk of different site conditions is minimal.
- ✓ Also known as a fixed-price contract.
- ✓ This type of contract is often used in the construction field to decrease the costs of contract administration.
- ✓ It's the most common agreement form for both small and simple projects.
- ✓ It tends to be used where a project is already well-defined in responsibilities and scopes for the parties.
- ✓ There also is little chance for a change, so the owner needs to have specifications and drawings that are complete.

Advantages:

- ✓ Low risk to the owner.
- ✓ 'Fixed' construction cost.
- ✓ Minimize change orders.
- ✓ Owner supervision is reduced when compared to Time and Material Contract.
- ✓ The contractor will try to complete the project faster.
- ✓ Accepted widely as a contracting method.

- ✓ Bidding analysis and selection process is relatively easy.
- ✓ The contractor will maximize its production and performance.

Disadvantages:

- ✓ It presents the highest risk to the contractor.
- ✓ Changes are difficult to quantify.
- ✓ The Owner might reject change order requests.
- ✓ The project needs to be designed completely before the commencement of activities.
- ✓ The construction progress could take longer than other contracting alternatives.
- ✓ The contractor will select its own means and methods.
- ✓ Higher contract prices that could cover unforeseen conditions.

LUMPSUM AND SCHEDULE CONTRACT:

- ✓ In this type of contract, the schedule of rates is also provided in the contract agreement.
- ✓ Measurement of extra items only shall have to be taken.
- ✓ The original work is however be checked and compared.
- ✓ The contract however includes a fixed sum within a fixed time along with the detailed specifications and conditions, and the scheduled rates.
- ✓ This contract is suitable when the number of items are limited or when it is possible to work out exact quantities of work to be executed.
- ✓ Under a lump sum contract, a "fixed price" for the work to be done is agreed upon by the client and contractor before the work begins.

Advantages:

- ✓ Low risk to the owner.
- ✓ Owner supervision is reduced when compared to Time and Material Contract.
- ✓ The contractor will try to complete the project faster.
- ✓ Accepted widely as a contracting method.

Disadvantages:

- ✓ It presents higher risk to contractor.
- ✓ The project needs to be designed completely before the commencement of activities.

- ✓ Changes are difficult to quantify.
- ✓ The Owner might reject change order requests.
- ✓ The construction progress could take longer than other contracting alternatives.

SCHEDULE CONTRACTS OR ITEM RATE CONTRACT:

- ✓ An item-rate contract is one in which the contractor agrees to carry out the work as per the drawings, bills of quantities, and specifications in consideration of a payment to be made entirely on measurements taken as the work proceeds, and at the unit- prices tendered by the contractor in the bill.
- ✓ An item rate contract, or unit price or schedule contract is a type of contract which is undertaken on per piece or item basis.

Advantages:

- ✓ There are no rates for individual items the benefit due to increase in quantities will not be availed by the contractor.
- ✓ Comparative statement can be prepared quickly.
- ✓ Overwriting & erasing of rates etc. can be avoided.
- ✓ profit of contractor is linked with actual cost so economic completion of work.
- ✓ Early completion.

Disadvantages:

- ✓ No extra work is allowed.
- ✓ The quantities of works are not guaranteed therefore there is risk to the contractor.
- ✓ The contractor may submit high tender.
- ✓ profit is not assured & depends on economy achieved in construction.

LABOUR CONTRACT:

- ✓ Contract labour refers to an employed person, hired to work in a company through a contractor for a specific work and a finite period.
- ✓ Contract labour, the labour of workers whose freedom is restricted by the terms of a contractual relation and by laws that make such arrangements permissible and enforceable.
- ✓ Other stipulations cover such matters as repayment of the costs of transportation, housing, training, and other expenses.
- ✓ The essence of the contract labourer's obligation is his surrender for a specified period of the freedom to quit his work and his employer.

Advantages:

- ✓ There is a wide disparity of views among the employers whether contract labour is engaged for flexibility or as cost saving mechanism.
- ✓ One of the main benefits, next to cost savings, for hiring contract labor involves the ease of separation.

Disadvantages:

- ✓ Job security: Even though there is no dearth of opportunities available for contract employment.
- ✓ Tax information: This is the part of legal obligation fulfilling which sometimesbecomes difficult for employees.
- ✓ Creating a brand
- ✓ Burden
- ✓ Time management issue

TARGET CONTRACT:

- ✓ Target cost contracts base their pricing on a figure that's aptly known as the target cost.
- ✓ This number is negotiated by both the contractor and the client before signing the contract, and represents the expected cost to the contractor of providing the agreed goods or services.
- ✓ If the final cost of the project is below the target cost, both the contractor and the client
- ✓ Similarly, if the final cost exceeds the target cost, both parties are responsible for paying this extra money.

TIME & MATERIALS SUPPLY CONTRACT:

- ✓ A Raw Material Supply Agreement is essentially an agreement to Sell as defined under the Sale of Goods Act, 1930.
- ✓ In other words, it is a sale agreement where one party agrees to sell and the other agrees to buy definite goods of economic value.
- ✓ The vesting of rights may be immediate or in future.

Advantages:

- ✓ Risk is less – the contractor will receive a fixed amount of overhead and profit, usually based on the total costs in a billing period.
- ✓ If additional costs are spent in a period, the contractor shall receive a larger payment for overhead and profit on top of those costs.
- ✓ Transparency for the client.

Disadvantages:

- ✓ Contractors may not understand the details of accounting in a construction context.
- ✓ They may bill haphazardly and infrequently.
- ✓ They may not have a good grasp of important concepts such as markup and margin.
- ✓ Contractors who agree to T&M contracts may be under cash flow stress and need to get the job started quickly.
- ✓ Contractors who use T&M contracts are often newer or inexperienced businesspeople who may not have substantial amounts of time in the industry.
- ✓ Contractors may find themselves with huge expenses at the end of a project that cannot be collected because of the terms of a T&M contract.

PIECE-WORK AGREEMENT:

- ✓ The piecework agreement between the employer and the individual employee must be in writing and signed by the employer and the employee.
- ✓ The employer must give the individual employee a copy of the piecework agreement and keep it as a time and wages record.

Advantages:

- ✓ When paid per piece, workers tend to develop and adhere to the most efficient means of production.
- ✓ Workers have a vested interest in achieving the company's goals in the most efficient way possible, because they're achieving more both for the company and for themselves.
- ✓ Increases the efficiency of all the employees.
- ✓ It is very easy to calculate the dues of the worker.
- ✓ Workers do not end up wasting any time.
- ✓ They are encouraged to think of better working methods.
- ✓ The number of products produced is much higher.
- ✓ The workers set deadlines for themselves.

Disadvantages:

- ✓ Workers pay much more attention to quantity and not quality.
- ✓ Finding and fixing on a reasonable piece cost is a rather tough task.
- ✓ Sometimes even more supervision is required.

COST REIMBURSEMENT CONTRACTS:

- ✓ Cost reimbursement items are not fixed prices. Those items are paid for based on what the Contractor spends in executing the work.
- ✓ Therefore, the payment of the Contractor is based on his actual expenditure.
- ✓ It includes labour, material, plants, sub-contracting cost, and other direct costs.
- ✓ Then the Contractor has to submit a load of invoices to demonstrate his actual cost.
- ✓ And also, he will be paid an agreed fee for his overhead and profit.
- ✓ The Contractor's cost accounts are open to audit by the Client (Open-Book Accounting).
- ✓ It is a little contractual incentive for the Contractor to perform, and the final price will depend both on the extent to which risks materialize and on the efficiency of the Contractor.

Advantages:

- ✓ Provide extreme flexibility.
- ✓ Allow and require a high level of client involvement.
- ✓ They facilitate joint planning.

Disadvantages:

- ✓ There is little incentive for the Contractor to perform efficiently.
- ✓ There is no estimate of the final price at the tender.
- ✓ Administrative procedures may be unfamiliar to all parties.
- ✓ In particular, the Client must provide cost accountants or cost engineers, who must understand the nature of a contractor's business.

FORMATION OF CONTRACT

Goals:

The goals of this section will be for you:

- ✓ To understand how a contract is formed.
- ✓ To understand each core concept of a contract.
- ✓ To understand the relationship between each core concept of a contract.

Objectives:

- ✓ To be able to understand the key terminology that relates to the formation of the contract.
- ✓ To be able to identify when a contract has been formed.

- ✓ To be able to identify whether the issue with a contract's formation is with the offer, acceptance, certainty/intention or consideration.

An agreement must have four essential elements to give rise to a contract and its respective obligations:

- ✓ Offer
- ✓ Acceptance
- ✓ consideration
- ✓ intention to create legal relations.

<u>Offer:</u>

- ✓ It is a promise to enter into a contract on certain terms.
- ✓ It must be specific, complete, capable of acceptance, and intended to be bound by acceptance.
- ✓ It can be express or implied by conduct.
- ✓ It can be made to an individual or a group or persons.

<u>Acceptance:</u>

- ✓ An offer must be accepted to create a contract.
- ✓ It must be final and unqualified with no variation to the proposed terms.

<u>Consideration:</u>

- ✓ Consideration essentially means that a person cannot enforce a promise unless he has given or promised something in return.
- ✓ A contract without consideration will only be enforceable if made by deed.

<u>Intention to Create Legal Relations:</u>

- ✓ The parties must intend to create a legally binding agreement, else there is no contract.

<u>CONDITIONS OF CONTRACTS</u>

- ➢ Rates inclusive of materials, labour,etc.
- ➢ Amount of security money
- ➢ Time for completion of work
- ➢ Progress to be maintained
- ➢ Penalty for bad work

- ➢ Mode of payment
- ➢ Extension of time limit for delay
- ➢ Termination of contract
- ➢ Compensation to labour, minimum wages, etc.

ELEMENTS OF A CONTRACT

- ➢ The contract itself must include the following:
- ✓ Offer.
- ✓ Acceptance.
- ✓ Consideration.
- ✓ Parties who have legal capacity.
- ✓ Lawful subject matter.
- ✓ Mutual agreement among both parties.
- ✓ Mutual understanding of the obligation.

CONTRACTS DOCUMENTS

- ✓ Contract Document is the written documents.
- ✓ It describes clearly about the work and defines the right and obligations of parties. (i.e., Owner and contractor).
- ✓ Its define the basis of the contract including both parties' roles, responsibilities, and detailed description of the work or service such as drawings, specifications, procedures, any other conditions, etc.
- ✓ It should include sufficient information to be able to complete the work or service.
- ✓ Construction contract documents include the Agreement, the Conditions of Contract, the Drawings, and the Specifications.
- ✓ Because of the legal implications, owners produce the Agreement and the Conditions.
- ✓ Architects are responsible for producing the Drawings and the Specifications.

CONTRACT AGREEMENTS AND CONTRACTS:

- ✓ This is an agreement used by the prospective building's owner and the contractor.
- ✓ It is the main contractual document, and other contractual documents attach a reference to it.

Statement of Work (Som):

- ✓ A solid scope of work is crucial in the bidding process and the constructions sequence.

- ✓ This document defines the scope of work to be applied in determining the work amount required for project completion.

General Conditions:

- ✓ This is a contract document defining obligations in regards to project execution and the rights of each party.
- ✓ It includes all overhead costs, what someone can claim, and entitlements.

Special Conditions:

- ✓ This is an amend and an extension of the general conditions.
- ✓ It needs to specify general conditions and clauses pertaining to every project or job.
- ✓ It has special instructions and requirements on how each job should be performed.

Bill of Quantities:

- ✓ This is a document made up by the list of different materials and trades that the construction project will require.
- ✓ This document might not be required by the contracting officer at all times.

Drawings:

- ✓ Each contract can have a set of drawings forming part of the job that ought to be performed.
- ✓ The drawings need to be issued to a contractor before commencing the building.
- ✓ This should include all drawings from consultants and experts constituting the entire project.

Master Format Outline:

- ✓ This is a technical requirement to complete, execute and perform tasks or get matters incorporated in a building project.
- ✓ It adds intelligence to the drawings of a construction.
- ✓ The role of this document is specifying common standards explaining accepted deviations, and providing information on accepted material details.
- ✓ It also cites all required materials for testing.
- ✓ Specifications could be made through referencing construction codes and standards.

Creating Construction Schedule:

- ✓ A construction schedule is a crucial component of this document.
- ✓ A contracting officer knows how and when a project will be completed through the review of this part.

- ✓ At times, a construction contract might need an updated schedule throughout the construction progress.
- ✓ The schedule can be monthly or agreed on payment application terms.

<u>Costs in The Construction Industry:</u>

- ✓ This breaks down all the construction project's incorporated items.
- ✓ It is normally the base for payment application.
- ✓ It could be detailed per item or in the form of lump sum without specifying individual items.

<u>List of Common Types of Construction Insurance:</u>

- ✓ This forms an important part of the contract by providing the owner a guarantee that the contractor has economic backup and means to perform under the construction contract's terms.
- ✓ It includes specific coverage types, insurance protections available to the prospective property owner, and required bonding.

<u>EARNEST MONEY DEPOSIT:</u>

- ➢ Earnest money refers to the deposit paid by a buyer to a seller, reflecting the good faith of a buyer in purchasing a home.
- ➢ The money buys more time to the buyer before closing the deal to arrange for funding and perform the hunt for names, property valuation, and inspections.
- ➢ Earnest money can be called, in many respects, a deposit on a property, an escrow deposit, or money of goodwill.
- ➢ Make sure the contract provides contingencies for funding and inspections.
- ➢ Without these, the deposit will be forfeited if, during the inspection, the buyer can't get funding or a significant defect is found.
- ➢ Read, comprehend, and comply with the terms and conditions of the contract.
- ➢ For instance, if the contract specifies that home inspection needs to be done by a certain date, the buyer must meet the deadline, or they risk losing the deposit and the property.
- ➢ Ensure that the deposit is handled properly.
- ➢ The deposit needs to be payable to a reputed third party, such as a well-known real estate brokerage, title company, escrow, or a law firm (never send the deposit directly to the seller).
- ➢ Buyers can keep the funds in an escrow account and also get a receipt.

SECURITY DEPOSIT:

- A security deposit is money that is given to a landlord, lender, or seller of a home or apartment as proof of intent to move-in and care for the domicile.
- Security deposits can be either be refundable or nonrefundable, depending on the terms of the transaction.
- A security deposit is intended as a measure of security for the recipient, and can also be used to pay for damages or lost property.
- Security deposits serve as an intangible measure of security, or as a means of tangible security in the event of damages or lost property.

MEASUREMENT BOOK:

- It is a complete measurement of some physical intervention, which can be recorded in the time of completion of any physical intervention.
- The most important objective of maintaining the final measurement would be to keep all the measurements in one place.
- ✓ Measurement Book" is an important document in which measurements are recorded for the work done by the contractor, or for the materials received at the site or services rendered.
- ✓ MB belongs to the Division and is serially numbered recording to whom issued, date of issue, etc
- ✓ Contractor payments are made based on the measurements recorded in the MB.
- ✓ It is considered very important accounts record and maintained very carefully and accurately and form substantial evidence in the court of law - should need arises
- ✓ Measurements are written legibly so that transactions are readily traceable.
- **Recording of measurements**

  Each set of measurements should commence with entries

- ✓ Work Name as given in the estimate / agreement
- ✓ Work location
- ✓ Contractors Name
- ✓ Agreement Number and date
- ✓ Work commencement date
- ✓ Work completion date
- ✓ Measurement recording date

<u>NOMINAL MUSTER ROLL:</u>

- ✓ Nominal Muster Roll where daily attendance are recorded.
- ✓ In this part there are column and spaces for the names of the labourer, designation, father's name, dates of attendees, rates, total amount due for each, total amount for whole, signature of the person taking attendance, signature of the officer making payment etc.
- ✓ Nominal Muster Roll never be made in duplicate and entries should be made in such manner that it may not be possible to interpolate or to alter them.
- ✓ The names of the labourer are grouped according to classes as masons, mazdoors, carpenters etc.

<u>ARBITRATION AND LEGISLATION:</u>

Definition:

- ✓ It is a process by which parties by way of an agreement in writing submit their disputes or differences to a neutral person or group of persons for binding adjudication.

<u>Arbitrator:</u>

- ✓ An arbitrator is more or less like a private judge chosen by parties and endowed by them with power and privilege to decide the matter of dispute between them.

<u>Advantages of Arbitration:</u>

- ✓ It is possible to avoid legal formalities, delays and expenses.
- ✓ Simple process to solve the dispute
- ✓ It is conducted in private and not in open as in court.

II. VALUATION

- Valuation is the analytical process of determining the current worth of an asset or a company.
- Valuation is the technique of estimation or determining the fair price or value of property such as building, a factory, other engineering structures of various types, land etc.
- By valuation the present value of a property is determined.
- The present value of property may be decided by its selling price, or income or rent it may fetch.
- The value of a property depends on its structure, life, maintenance, location, bank interest, legal control etc.
- The value also depends on supply on demand and the purpose for which valuation is required.

PURPOSE OF VALUATION:

- **Buying or Selling Property:**
  - ✓ When it is required to buy or sell a property, its valuation is required.
- **Taxation:**
  - ✓ To assess the tax of a property, its valuation is required.
  - ✓ Taxes may be municipal tax, wealth tax, Property tax etc, and all the taxes are fixed on the valuation of the property.
- **Rent Fixation:**
  - ✓ In order to determine the rent of a property, valuation is required. Rent is usually fixed on the certain percentage of the amount of valuation which is 6% to 10% of valuation.
- **Security of Loans or Mortgage:**
  - ✓ When loans are taken against the security of the property, its valuation is required.
- **Compulsory Acquisition:**
  - ✓ Whenever a property is acquired by law; compensation is paid to the owner. To determine the amount of compensation, valuation of the property is required.
- Valuation of a property is also required for Insurance, Betterment charges, speculations etc.

- **Role of An Engineer:**

- ✓ The roll of an Engineer in valuation is felt when an Engineering structure is to be valued, if and when it is: -

  1. To be acquired
  2. To be divide
  3. To be allotted to a claim holder.

FACTORS CONSIDERATION FOR VALUATION:

- **Locality: -**

- ✓ In case a building is located in such an area, where there is easy access to market, schools and is located on road side.
- ✓ The Orientation of the building is according to Engineering rules.
- ✓ It will fetch more cost than a building which is in a neglected condition and is locate at unhealthy site.

- **Structure:**

- ✓ The structure of a building is also an important consideration while evaluating a building.
- ✓ Workmanship I attractive and the building is properly maintained, it will fetch more cost than the building in a neglected form with poor quality of material used.

- According to specifications a building is divided in four classes:-

- ✓ First Class
- ✓ Second Class
- ✓ Third Class
- ✓ Fourth Class

- **Value:**

- ✓ Present day cost of a Engineering structure (Saleable value)

- **Cost:**

- ✓ Original cost of construction.

IMPORTANT TERMS

- **Municipal Taxes:**

- ✓ Municipality needs money in order to undertake and maintain public utility services and the same is collected by imposing taxes on the property.

- ✓ The main utility works are roads, drainages, water supply tec. and the construction and maintenance.
- ✓ The taxes are assessed on some percentage basis on the net income from the property and varies from 10 % to 25 % of the net income.
- ✓ Usually for small houses the taxes are less and for big houses the taxes are high.

➢ **<u>Capital Cost:</u>**

- ✓ Capital cost is the total cost of a construction including land or the original amount required to possess a property.
- ✓ It is the original cost and does not change, while value of a property is the present cost which may be calculated by methods of valuation.

➢ **<u>Capitalized Value:</u>**

- ✓ The capitalized value of a property is the amount of a money whose annual interest at the highest prevailing rate of interest will be equal to the net income from the property.
- ✓ To determine the capitalized value of a property it is required to know the net income from the property and the highest prevailing rate of interest.

➢ **<u>Year's Purchase (Y.P):</u>**

- ✓ Year's purchase is defined as the capital sum required to be invested in order to receive an annuity of Rs. 1 at certain rate of interest.
- ✓ For 4 % interest per annum to get Rs.4 it requires Rs.100 to be deposited in a bank.
- ✓ To get Rs.1 per year it will be required to deposit ¼ of Rs.100 i.e 100/4 = Rs.25.
- ✓ Year's Purchase = 100/Rate of interest

➢ **<u>Gross Income:</u>**

- ✓ Gross income is the total income and includes all receipts from various sources.

➢ **<u>Net Income or Net Return:</u>**

- ✓ This is the saving or the amounts left after deducting all outgoings, operational and collection expenses from the gross income or total receipt.

➢ **<u>Outgoings:</u>**

- ✓ Outgoings or expenses which are required to be incurred to maintain the revenue of the building.
- ✓ The various types of outgoings are as follows:
- ✓ Taxes
- ✓ Repairs

- ✓ Management and Collection charges
- ✓ Sinking Fund
- ✓ Loss of Rent
- ✓ Miscellaneous

Taxes:

These are annual taxes paid by the owner, such as wealth tax, property tax and municipal taxes (varies from 10% to 25% of net income).

Repairs:

For this 1 ½ % of the total construction is set aside for annual repairs of the building.
These repairs are must to maintain the building. It is also calculated as 10% of the gross income.

Management:

Upto 10% of the gross revenue is kept aside for this expense.
This includes, chowkidar sweeper etc. this is applicable only for big buildings or apartments

Miscellaneous:

This is again suitable for big buildings.
Lighting of common place, expenditure of liftman etc. are to be paid by the owner.

Loss of Rent:

This is also an outgoing in case a building in not fully occupied by the tenants.
This has to be deducted from gross income.

Insurance:

Premium given against fire or for theft policy.

Obsolescence:

The value of property decreases if its style and design are outdated i.e. rooms not properly set, thick walls, poor ventilation etc.

The reasons of this is fast changing techniques of construction, design, ideas leading to more comfort etc.

Free Hold Property:

- ✓ Any property which is in complete possession f the owner is known as free hold property.
- ✓ The owner can use the property in an way he likes.

- ✓ But he will have to follow constraints fixed by town planners or Municipality before doing any construction.

Lease Hold:

- ✓ If a property is given to some person on yearly payment basis by the free holder, then the property is called „lease hold property" and the person who take s the property is called Lease-holder.
- ✓ In case of building, the lease is for 99 years to 9 years.
- ✓ Types of Lease
  - Building Lease
  - Occupation Lease

Easement:

- ✓ An owner getting over the property of another person, the following faculties is known as easements.
- ✓ Facility of running water and sewer pipes through other's land.
- ✓ Facility of air and light.
- ✓ Facility of drainage of rain water.
- ✓ Facility of access.

Scrap Value:

- ✓ If a building is to be dismantled after the period of its utility is over, some amount can be fetched from the sale of old materials.
- ✓ The amount is known as Scrap Value of a building.
- ✓ If varies from 8% to 10% of the cost of construction according to the availability of the material.
- ✓ In case where Wood & Steel are available, the scrap value is more than as R.C.C structure, as in the latter case, the material has less reuse value.

Salvage Value:

- ✓ If property after being discarded at the end of the utility period is sold without being broken into pieces, the amount thus realized by sale is known as its Salvage Value.

Annuity:

- ✓ The return of capital investment in the shape of annual instalments (monthly, quarterly, half yearly & yearly) for a fixed number of years is known as annuity.

Market Value:

- ✓ It is defined as the value which a property can fetch when sold out in open market.
- ✓ This value is variable, depending upon the will to buy or sell.

Book Value:

- ✓ It is the amount of a property shown in the books, after allowing necessary depreciations year-wise.
- ✓ The book value is independent of market-value.

Sinking Fund:

1. The fund which is gradually accumulated by way of periodic on annual deposit for the replacement of the building or structure at the end of its useful life is termed as sinking fund.
2. The calculation of sinking fund depends on the life of the building and scrap value of the building for the cost of old materials.
3. A fund which is gradually accumulated and aside to reconstruct the property after the expiry of the period of utility is known as sinking Fund.
4. The sinking funds may be found out by taking a sinking fund policy with any insurance company or depositing some amount in the bank.
5. Generally, while calculating the sinking fund, life of the building is considered. 90% of cost of construction is used for calculations & 10% is left out as scrap value.

METHODS OF VALUATION:

- ➢ The following are the various methods of valuation:
- ✓ Depreciation method of valuation
- ✓ Valuation based on cost
- ✓ Valuation based on profit
- ✓ Valuation by Development method
- ✓ Rental method of valuation

- Structures with 100 years life, rd = 1.0
- Structures with 75 years life, rd = 1.3
- Structures with 50 years life, rd = 2.0
- Structures with 25 years life, rd = 4.0
- Structures with 20 years life, rd = 5.0

METHODS TO CALCULATING DEPRECIATION:

- Straight line method
- Constant percentage method or Declining balance method
- Sinking fund method

Constant Percentage Method:

Annual Depreciation, $D_m = C\,[\,(1-r)^{m-1} - (1-r)^m\,]$, $r = 1 - (S/C)^{1/n}$

VALUATION BASED ON COST:

- In this method, the actual cost of the construction is found out and valuation is done after considering depreciations and the points of obsolescence should also be considered.

VALUATION BASED ON PROFIT:

- This method of valuation is suitable for buildings like cinema theatres, hotels, banks, big shop etc. for which the capitalized value depends on the profit.
- The capitalized value is calculated by multiplying year's purchase with net profit.
- In such cases, valuation may work out to be too high in comparison with the cost of construction.
- The net profit is worked out after deducting all possible outgoings and expenditures from the gross income.
- In such cases the cost will be too high as compared with the cost of construction actually incurred.

VALUATION BY DEVELOPMENT METHOD:

- This method of valuation is used for the properties which are in the undeveloped stage or partly developed and partly undeveloped stage.
- If a large place of land is required to be divided into plots after providing for roads, parks etc., this method of valuation is to be adopted.
- This method is also used for working out the value of a building.
- If a building is required to be renovated by making additions, alterations or improvements, development method of valuation may be used.
- In cases, when the building is still under development.
- In this case the future development of the building and profits from it should be anticipated while evaluating.

RENTAL METHOD OF VALUATION:

- Rent of a building is used as a base for calculating value of a building.
- In this method the net income by way of rent is found out after deducting all out goings from the gross rent.
- A suitable rate of interest prevailing in the market is assumed and year's purchase (Y.P) is calculated.
- Based on the above rate of interest, the net income multiplied by Y.P gives the capitalized value or valuation of the property.
- This method is applicable only when the rent is known or probable rent is determined by enquiries.

FIXATION OF RENT:

- The rent of building is fixed on the basis of certain percentage of annual interest on the capital cost and all possible annual expenditures on outgoings.
- The capital cost includes the cost of construction of the building, the cost of sanitary and water supply work, cost of electric installations and cost of subsequent additions and alterations if any.