

# **Civil Engineering Drawing & Graphics**

## **Course Code: CE- 212**

### **Lecture - 1**



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# INTRODUCTION

- ▶ What is drawing?
  - It is the graphical representation of any object, like Building, Bridge, Road, Irrigation system etc
  
- ▶ what is the need of drawing?
  - Shapes of simple objects like sphere, cube, cylinder, etc., can be described in words/sentences but ordinary language fails for complicated objects/Details.

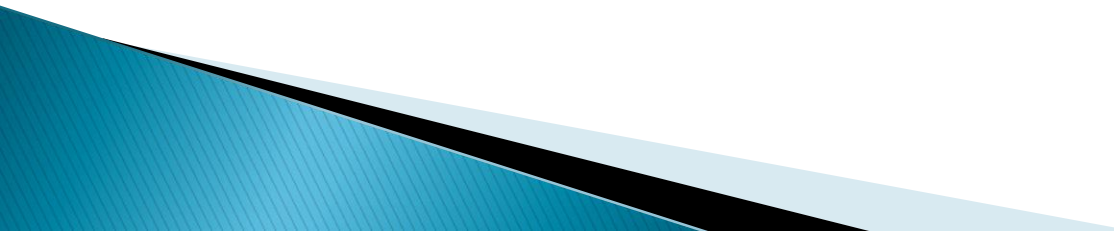
# INTRODUCTION

- ▶ What is Engineering drawing?
  - Drawings that shows technical details are called engineering Drawings.
  - Location Plan, Different Views (front , Back, top, bottom and sides) Sections and typical details etc.

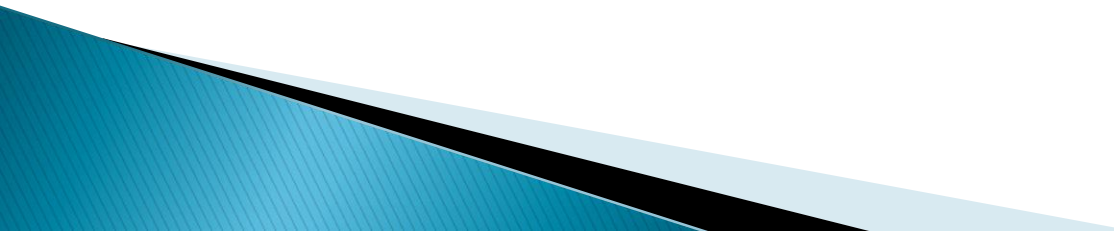
# INTRODUCTION

- ▶ Why Drawings are required in civil Engineering?
  - Even if a thick book is written to describe the shape of a structure, the reader will not be able to picture the exact shape of that structure with all its major & minor details.
  - It can be safely said that it is almost impossible to describe the shape of an object in words and hence only three methods are left for the purpose namely camera photographs, models and drawings.

## ▶ **Camera photographs**

- ▶ Can only be used to communicate the shape of existing structures
  - ▶ Do not show all the inner details
  - ▶ Do not show the exact dimensions
  - ▶ Can not picture the shape in the mind of Engineer.
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## ▶ MODELS

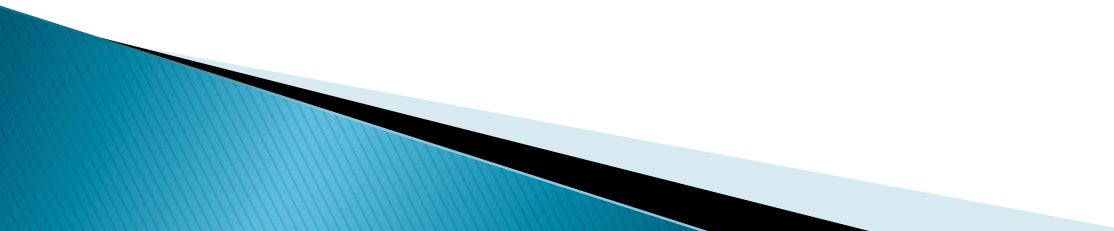
- ▶ Usually made up of wood, soap, plastic, etc
  - ▶ Best tool for shape description, but are generally used for explaining finished outer shapes of structures to non-Engineering persons.
  - ▶ Smaller in size than their original structures
  - ▶ Require more skills, space (Creation & Storage) and time for their creation
  - ▶ More chances of damage
  - ▶ Much more Costly
  - ▶ Not appropriate for shape-communication, can only be used in special occasions.
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## ▶ Drawings

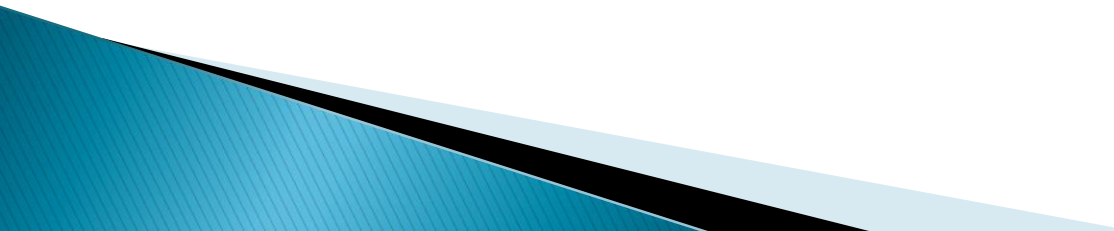
- ▶ Easiest way to describe an object; simply lines are drawn on paper according to certain fixed rules.

### ❖ Advantages

- ▶ Complete shape of the object can be represented.
- ▶ Shows Complete details of Project from start of end
- ▶ Efficient way of communication among engineers (Client, Consultant & Contractor).

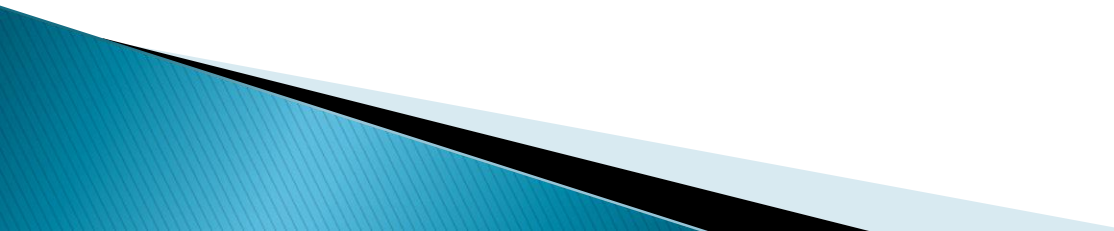
- Lesser times consumed in Drafting.
  - Relatively low skills are required for making and understanding the drawings.
  - Lesser space is consumed for their storage.
  - Can be easily transported from one office to other.
  - Can be handled at the site.
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- Multiple copies can be obtained.
  - Lesser cost is involved in Drafting.
  - Can be easily edit according to requirements
  - Different Tolls are available (CAD-2007, CIVIL 3D etc)
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# Types of Drawings

## 1. Architectural Drawings:

- These drawings provide basic idea of the building in design form with multi-dimensional virtual presentation.
  - Major components of house architecture drawing are rooms, stores, dining room, bathrooms, kitchen, TV lounge, stairs etc.
  - These drawings are developed by Architects.
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# Types of Drawings

## 2. Structural Drawings:

- These drawings are based on final architectural drawings which mainly show internal details of the buildings.
- These internal details may include reinforcement for RCC buildings, Flooring details, Roofs details etc.
- Main purpose of design building structurally means that the behavior of the building under the worst possible loads is studied, thickness and materials of construction are specified for various components of the structure such as foundation / footing, plinth beam, columns, roof beams, slab, stairs etc.

# Types of Drawings

## 3. Plumbing Drawings:

- These drawings are for public health showing water supply system and sewerage system of the building indicating the placement of lines e.g. GI, RCC etc.
- In water supply drawings hot water and cold water lines are shown with location of geysers, taps, showers etc.
- In sewerage drawings, lines for wastewater and sewage disposal are indicated with waste outlets heading towards manholes.

# Types of Drawings

## 4. Electrical Drawings:

- These drawings show how the wiring is placed in building elements and indicating the position of fittings and fixtures switches, sockets, lights fans etc.
- Moreover call bell system, fire-alarm system, CCTV system etc. are included.

# Types of Drawings

## 5. Air-Conditioning (HVAC) Drawings:

- These drawings are developed for the building with centrally air conditioning system.
- Placement of fresh air ducts and chilled air pipes is mentioned which helps to leave provision in structural elements and walls etc.

**Thank you**

