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## INTRODUCTION TO DRAWING

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### 2.1 INTRODUCTION

When we speak something it is expected that the other person who is listening understands the same and it is called the language. When we write something which is expected that the other person who is reading understands the same, this is called script e.g. Devnagri Lipi or Persian Lipi. In the same way an engineer communicates his idea through drawings, which is his script.

### 2.2 OBJECTIVES

After going through this lesson you will be able to:

- explain the meaning of building drawing;
- define the need for scale of the map;
- describe the type of drawing.

### 2.3 IMPORTANCE OF PLAN/MAP

First of all a plan/map is made before starting the construction project. As a matter of fact this determines as to at what place what will be constructed. e.g. Bed room, Kitchen, Drawing room, Bathroom Verandah, etc. After this, the front elevation and side elevation of the proposed building is prepared. All these maps show as to how the building will look when we see it from the top, front and side.

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Long time back the units for measuring length, weight and time were inch,/feet,/yard, ounce,/pound,/ton and second / minute/hour. The area of any place was measured in sq. inch, sq. ft, and sq. yd units.

Now, the units to measure these are Metre, Kilogram, and Seconds/1 m = 100 cm = 1000 mm. 1 km = 1000 meter.

Similarly 1 kg = 1000 gm, 1 Ton = 1000 kg = 10 quintal.

Let us suppose that it is proposed to construct a room where clear dimensions area 3.5 x 3.0 m and the thickness of the wall is 25 cm. If you see its plan you will get a rectangle.

## **2.4 NATURE OF THE DRAWING**

For knowing the location of the site, you should know the site plan. In the site plan important buildings and places are shown. These are called land marks and they help in reaching the site. You might have seen these land marks in road directions given often in invitation letter. They help in reaching the place where the function is to be held.

After locating the site with the help of road map the size of the plot is to be measured for which layout plan and site plans are required. This is usually given in the same map. Sometimes it is on a separate sheet as well. In this plan the details such as adjoining the plot other houses, roads, etc. are shown. All these things help in correctly locating the plot. Pegs are placed at located site.

### **Boundaries of Actual Construction:**

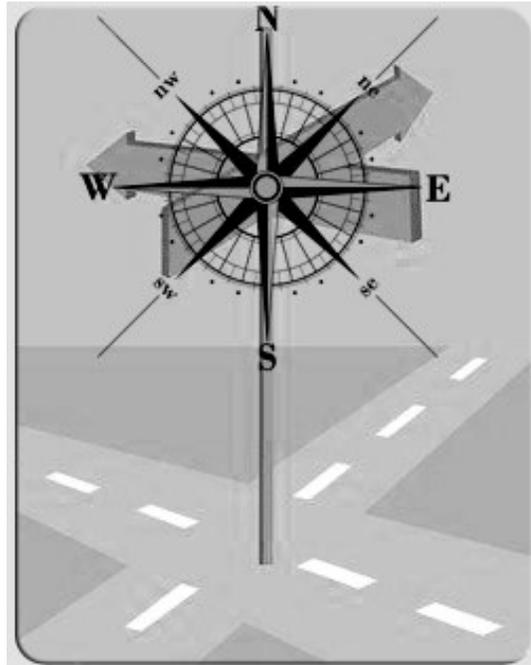
With the help of site plan the locations of all the walls are drawn on the actual land. This is called layout plan of the building.

## **2.5 IMPORTANT PARTS OF THE BUILDING DRAWING**

### **2.5.1 Direction Symbol (North line)**

This is an important part of any drawing. Whenever any information about the site is required, we can use this direction symbol. A typical direction symbol is shown in Fig. 2.1.

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**Fig. 2.1**

### **2.5.2 Detailed Plans**

In this plan a detailed drawing is prepared on a suitable scale of all the parts of the building with dimensions written on each part in most of the cases (Fig. 2.2). In case no dimension is written on one or two parts it can be measured and converted to the actual size by using the scale.

The section of the building cut at the sill level of window and are drawn to a scale as seen for the top is called sectional plan. The window level is called sill level of the building (Ref. Fig. 2.3). In this plan we can measure only length and breadth of any item of the building.







**Fig. 2.4 Three dimensional view of building**

### 2.5.3 Views

Any building can have following views (Figure 2.3 and 2.4)

**Front elevation:** It is the view of the building when observed from the front. In this view length / breadth and height are shown.

**Side elevation:** It is the view of the building when seen from the side.

**Real view/three dimensional view:** It is the view of the building when seen through an angle of  $30^{\circ}$  or  $60^{\circ}$  from the front.

## 2.6 PLANS FOR SERVICES

Along with the map of the proposed building such as site plan, lay out plan, sectional plan, front elevation, side elevation, sectional elevation other related drawings of the building are also prepared. These are as follows:

1. Sanitary and water supply lines
2. Electrical fittings lines
3. Timber works drawing
4. Reinforcement details / plans (Ref. Fig. 2.5)

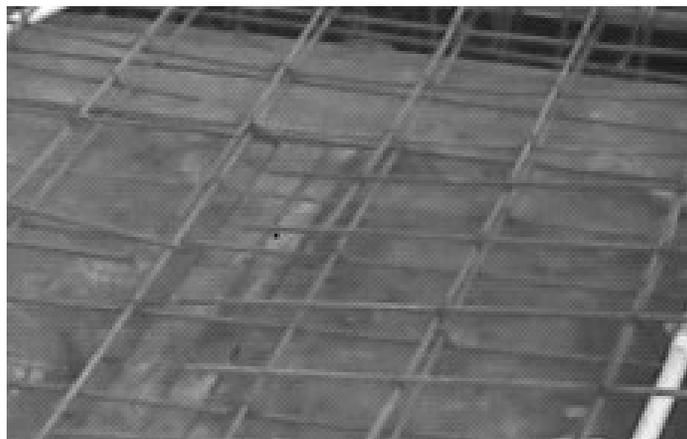


Fig. 2.5

## 2.7 SCALE OF THE DRAWING

The scale of any drawing shows the ratio of distance on the land to that of the distance shown on the plan/map for the same object. For example if two

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points at a distance of 10 m are required to be shown on the map, it can be shown by 1.0 cm distance on it. This is called the scale of the map.

If expressed in the same unit then it is called R.F. (Representative Fraction), which will become 1000 in the above case. It may also be termed as scale ratio.

This ratio can be increased or decreased as per need.

**Table No. 2.1**

Length in the map			Scale (Ratio)	Original Length of land/object	
in mm	in cm	in m		in cm	in m
1	2	3	4	5	6
	Column 1 /10	Column 2 /100		Column 2 /scale ratio	Column 5 /100
3000	300	3	1:100 or 1/100	30000	300
3000	300	3	1:50 or 1/50	15000	150
3750	375	3.75	1:100 or 1/100	37500	375
3750	375	3.75	1:50 or 1/50	18750	187.5

## 2.8 WHAT HAVE YOU LEARNT

- Map shows the plan of construction i.e. what will be constructed and where.
- Site plan is prepared accordingly.
- There is a special technique to measure distances through maps using scale of the map.

## **2.9 TERMINAL QUESTIONS**

1. What do you understand by the term “Map”?
  2. How many types of maps are there?
  3. What is the necessity of scale in the map?
  4. Differentiate between plan and elevation.
  5. What are the things required to be present in the site map for site identification?
  6. What is the difference between front elevation and side elevation?
  7. What do you understand by the term “detailed map”? Describe in brief.
  8. Why direction/road map plan is made?
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