

## CHAPTER-8

### BUILDING DRAWING

#### **Line Plan / Line diagram:**

- It is a line sketch drawn not to scale, which indicates the arrangement of rooms, toilet, passage, verandah etc, and position of door / window.
- The dimensions shown in the line diagram are inside to inside dimensions.
- The details given in the line diagram are used to draw the building drawing (i.e., Plan, Elevation and Sections) to a scale.
- This is drawn for the primary approval of the owner before drawing the Plan, Elevation and Sections.

#### **Plan:**

- Plan of a building represents a horizontal section of building.
- It is obtained by cutting the building at certain height (generally at window sill level) by a horizontal cutting plane and then, removing the upper part of the building the remaining portion is seen from the top and is projected on the horizontal plane (HP).

#### **Elevation:**

- Elevation is one side outward view of a building, which is drawn by projecting that side of the building on a vertical plane (VP). When the building is seen by standing in front of it then, what is seen and projected on the vertical plane (VP) is called **front elevation**.
- Similarly, when the building is seen by standing from any of the side of the building then, what is seen and projected on the VP is called **side elevation**.

#### **Section:**

- Section refers to a vertical section of building.
- It is obtained by cutting the building in two parts by vertical plane / planes from the top up to below the foundation depth (i.e. bottom of footing) and one part is considered to be removed and the other remaining part is projected on a vertical plane. The diagram so obtained is the sectional view of the building.

The details of a building can be obtained from the plan, elevations and section from a 2D drawing.

As per the syllabus of only drawing of Plan and Front Elevation of a single room building is there.

## IMPORTANT TERMS RELATED TO BUILDING

### Super-Structure:

- The portion of the building/structure, which lies above the ground level, is referred as **super-structure**.

### Foundation:

- This is the portion of the building, which is constructed below the ground level and is also called as **sub-structure**.
- The main function of foundation is to distribute the load of whole structure over a large area.

### Plinth:

- The portion of a building between ground level (GL) and floor level (FL) is called plinth/plinth wall.
- When the thickness of plinth wall is more than super-structure wall, the projected portion of the plinth wall from the super-structure wall is called plinth projection.
- The vertical distance from GL to FL is termed as **plinth height**.
- Generally plinth height of 450mm/600mm is provided.

### Lintel:

- It is the element of the building, which is provided over the small openings of the doors/windows/verandah to transfer the load coming over them on to the wall on which they rest.
- Now-a-days RCC (Reinforced Cement Concrete) lintel is provided in the buildings.
- Its size depends on the opening size.
- Depth and width of lintel is generally of 150mm and 300mm respectively.

### Chajja/Sun shade:

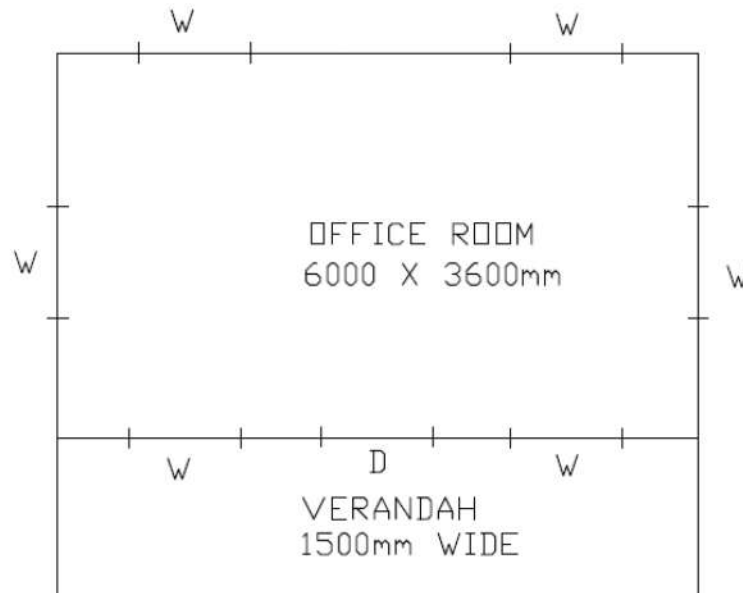
- It is the horizontal/sloping element of the building provided over the openings on external walls and projected from the lintel outward to provide protection from sun and rain.
- Chajja is constructed using RCC.
- Thickness and width of a horizontal chajja is 75mm and 450mm respectively.

### Ceiling Height:

- Soffit of the roof slab is termed as ceiling.
- The height of room from the flooring to the ceiling is called ceiling height.

**Problem No. 1**

Draw the plan and front elevation of the building from the line plan and specifications as given below.



LINE PLAN OF A SINGLE ROOM OFFICE BUILDING

Given Specifications

1. Wall thickness - 300mm
2. Plinth height - 600mm
3. Plinth wall thickness- 400mm
4. Step
  - (i) Trade - 300mm
  - (ii) Riser - 150mm
5. Ceiling height for room and verandah- 3000mm
6. Spacing of masonry pillars (3300mmx300mm) in verandah should not exceed 3m
7. Roof slab thickness - 100mm
8. Roof slab projection from the wall (Cornice)- 100mm
9. Chhajja (Sun Shade):
  - (i) Thickness- 75mm
  - (ii) Width- 450mm
10. Door & Windows Schedule
  - (i) Window (W) - 1050 X 1350mm
  - (ii) Door (D) - 1050 X 2100mm
11. Size of Door/Window Chaukath (Frame): 75 X 100mm

**Steps for drawing Plan**

- First imagine that the building (as shown in Fig.1) is cut by a horizontal plan at window sill level and after removing the top portion remaining portion is as shown in Fig. 2, the pictorial view.

- Then, the various elements of the building as shown in Fig.2 like the wall, windows, door, pillars, step etc. are projected on a horizontal plane (HP) keeping it below the above building as per the principle of first angle projection.
- The figure obtained from the above projection is the required **plan** as shown in Fig.3.
- The elements of the building, which are above the window sill level, are also shown in the plan as hidden line (i.e. by dashed line in state of continuous line) for example, the chajja.

### Steps for drawing Elevation

- The pictorial view of the building from the front side is shown in Fig. 1
- Imagine that observer is standing in front of the above building and keeping the vertical plane (VP) behind it the front portion of the building is projected on to the VP.
- The figure so obtained on the VP is the **front elevation** as shown in Fig. 3.
- As per the principle of first angle projection the front elevation is drawn just above the plan.
- Thus, from the plan vertical lines from plinth wall, wall, pillar, etc. are projected. These lines are cut by horizontal lines at different height to get the elevation of different elements present in the front portion of the building.



Fig.1 PICTORIAL VIEW OF THE GIVEN BUILDING

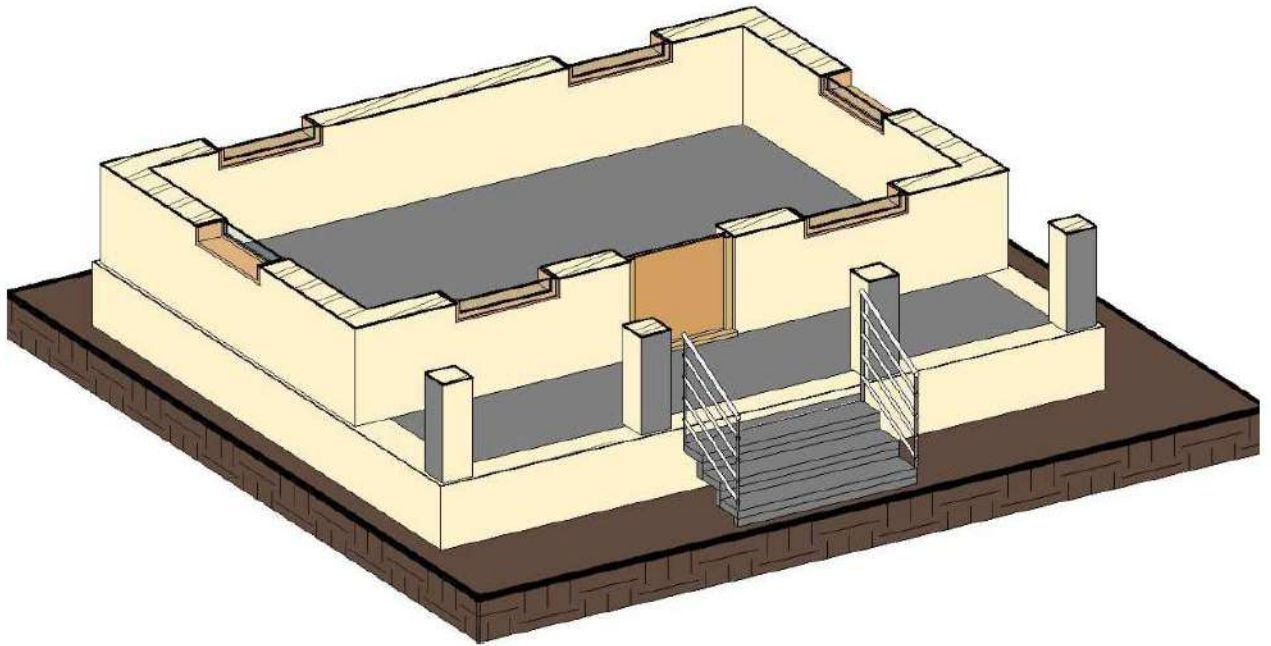
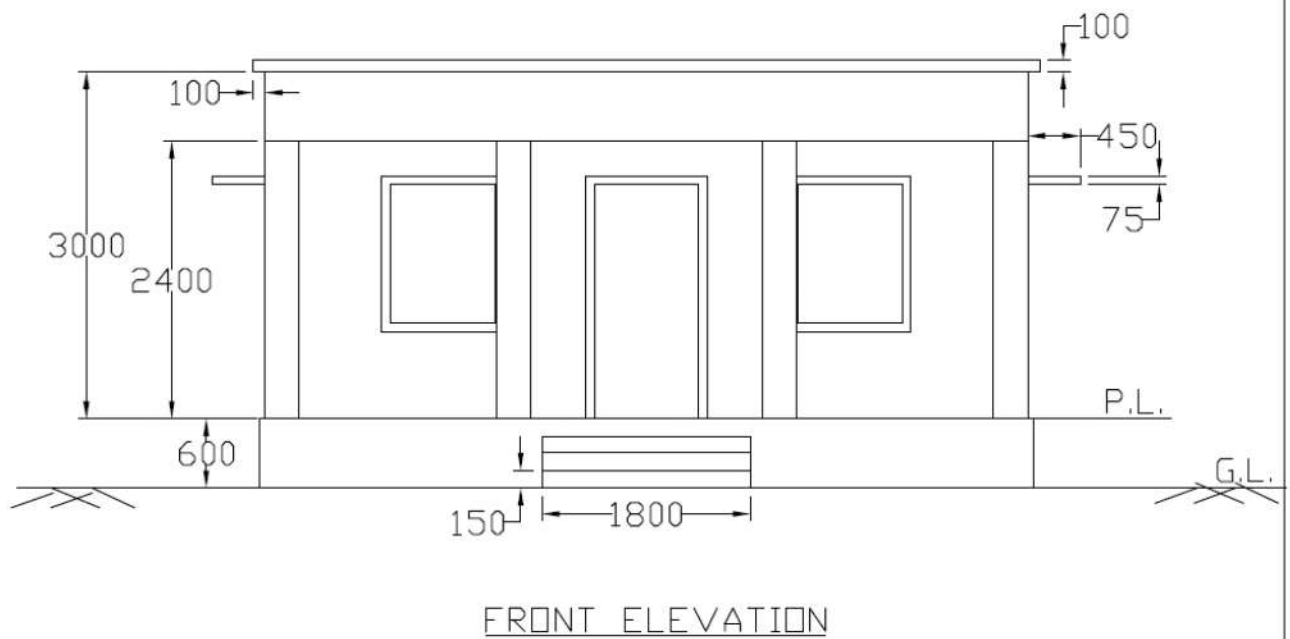
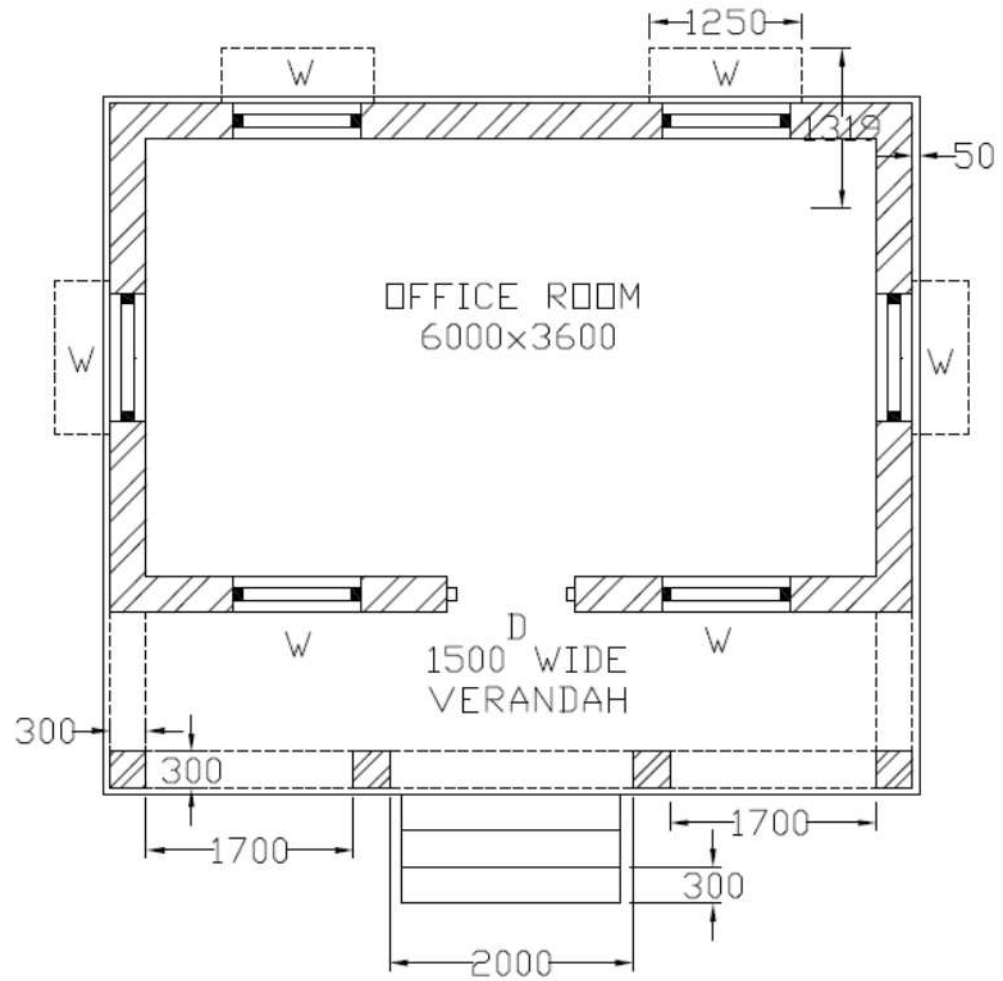


Fig 2. PICTORIAL VIEW OF THE REMAINING PORTION OF THE BUILDING CUT BY A HORIZONTAL PLANE JUST ABOVE THE WINDOW SILL LEVEL





PLAN

ALL DIMENSIONS ARE IN MM

Fig. 3 PLAN AND FRONT ELEVATION