

Kurdistan Region - Iraq
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Building Elements

(Plinth - Plinth Beam)

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Introduction of Building Elements



Figure.1: Basic components of building

▶ There Mentioned below are the 12 basic elements a building structure.

1. Foundation
2. **Plinth**
3. **Plinth Beam**
4. Stairs
5. Floor
6. Walls
7. Damp proof course (DPC)
8. Columns
9. Beams
10. Lintels
11. Parapet
12. Roof

2.Plinth:

The plinth is constructed above the ground level. It is a cement-mortar layer lying between the substructure and the superstructure.





Plinth function:

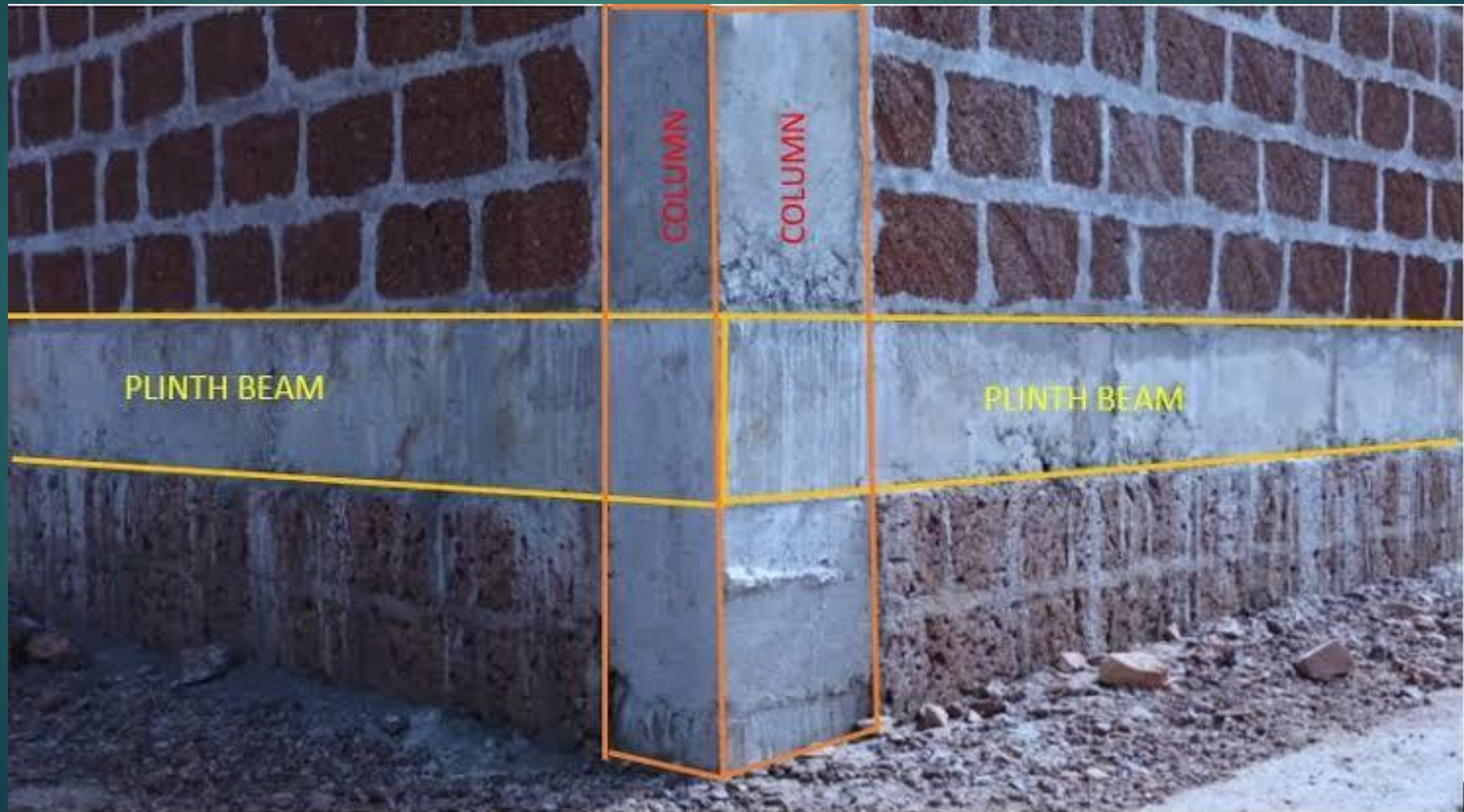
The **main function** is to **prevent** the entry of **moisture** from the **Ground surface** to the **building superstructure**.

Plinth Standard Dimensions:

The **plinth height** of any building must be **at least 45 cm** and also, it has (60,70,90, and 120) from **the ground level**.


3.Plinth beam:

Plinth beams are horizontal structural elements or beam elements that are constructed between the wall and the foundation as shown in the figure below.




Plinth beam functions:

- ▶ The **plinth beams** distributes the load coming from the walls constructed above equally to the below foundation elements.
- ▶ Plinth beams are generally constructed connecting the columns of the building similar to a tie beam, plinth beam therefore helps to reduce the settlement issues that are faced by the loading due to unequal transfer of load.

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- ▶ The **unequal transfer of load** will result in settlement of the building which result in **cracks** in the masonry wall which later **transmits** to the **foundation**.
 - ▶ Also, plinth beam is a **better solution** to **prevent the extension** or the **transmission of cracks** from the **wall to the foundation**.

Purpose of the Plinth beam:

- ▶ Plinth beams are provided in areas that are more likely to earthquake in seismic regions.
- ▶ Plinth beam act as a connecting band a continuous band that can help to improve the strength of the building in dynamic loads.
- ▶ The construction of plinth beam above the natural ground is another application of these type of beams.

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- ▶ It also helps to reduce the settlement (payment) issues that are faced by the buildings. Settlement issues that can result in wall cracks and its propagation is also resisted by the constriction of plane beams.
 - ▶ The use of plinth beam reduces the effective length of column that means it reduces the slenderness of the column which can further prevent the buckling issues phase by column under unexpected loading conditions.

Thank You