

BUILDING TECHNOLOGY |

BUILDING Construction |

الإنشاء المعماري

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BUILDING TECHNOLOGY I

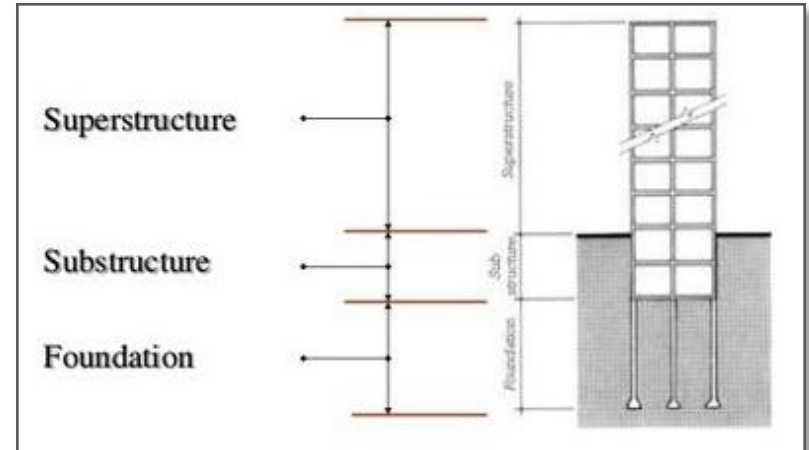
4 Introduction to Foundations

Foundation Systems Introduction

A structure consists of two parts, namely the super structure and the substructure.

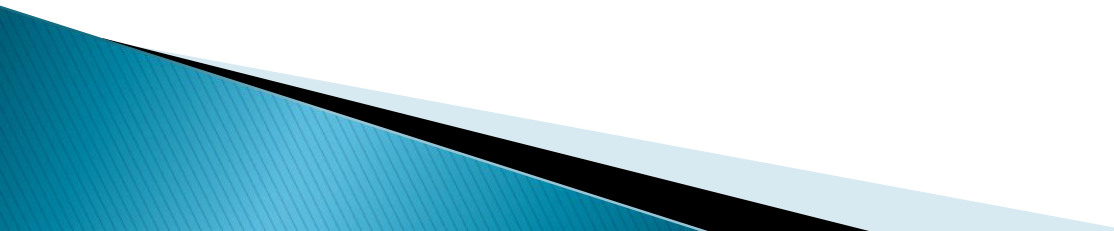
The substructure or foundation: Is the part of a structure that is usually placed below the surface of the ground to transmit the load from the superstructure to the underlying soil or rock.

Footings: Are those parts of foundation which resting directly on the soil, support specific portion of building and distribute building loads directly to the soil.



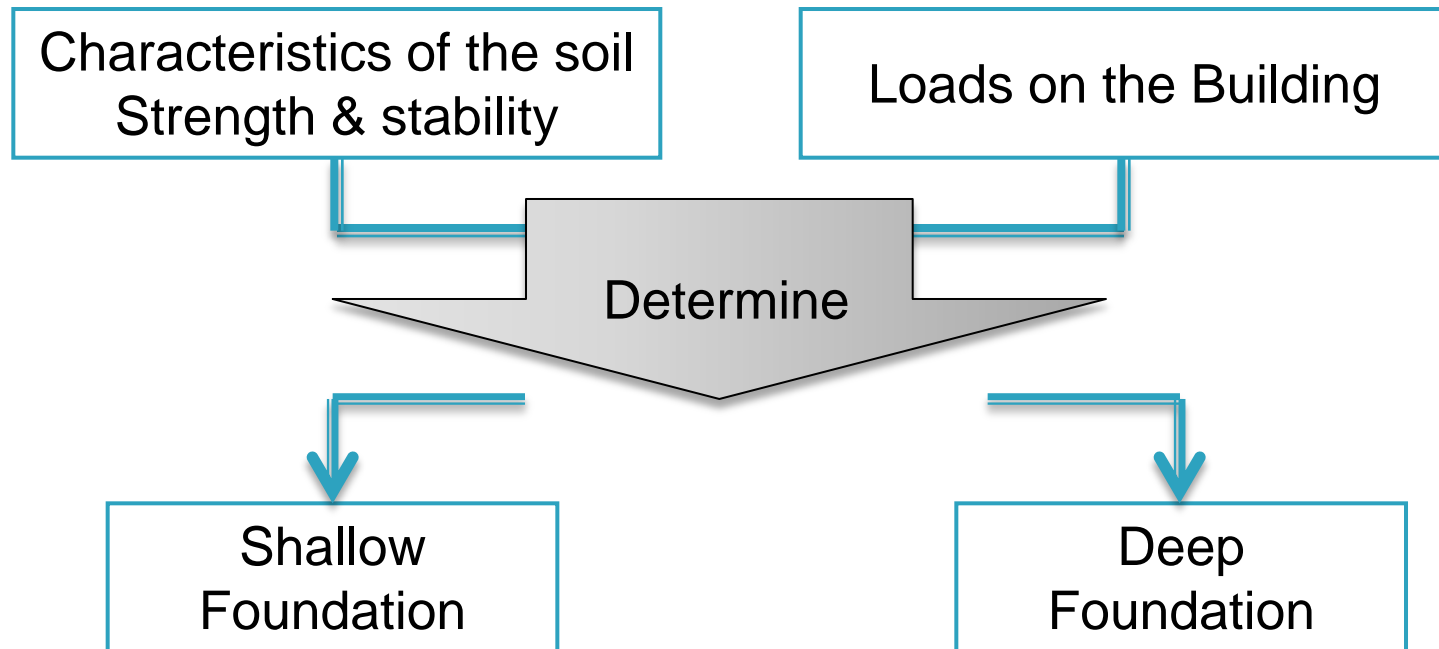
Foundation Systems Introduction

Why foundation systems?

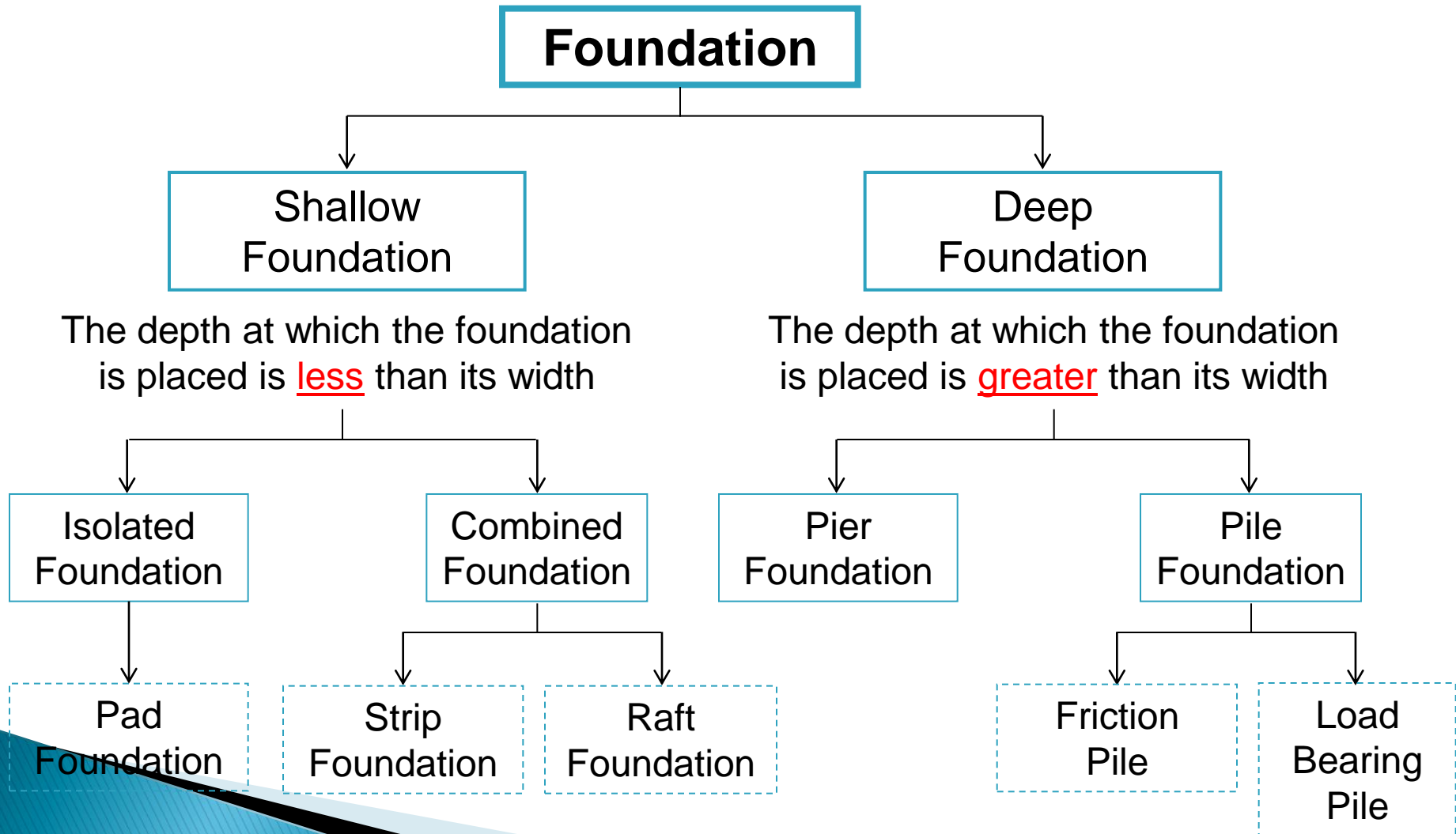
- To** transmit loads into the earth, because it serves as a critical link in the distribution and resolution of building.
 - To** withstand the sudden ground movements of an earthquake.
 - To** resist the pressure imposed by surrounding soil mass on basement wall.
 - To** support the superstructure above against wind.
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Foundation Systems Types

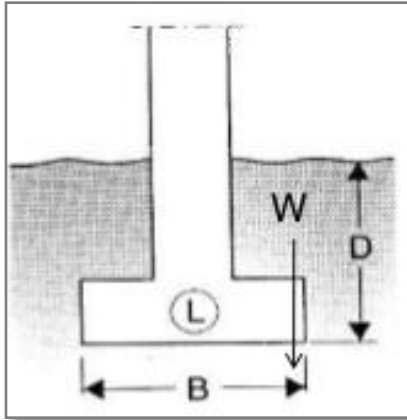
The choice of Foundation Type



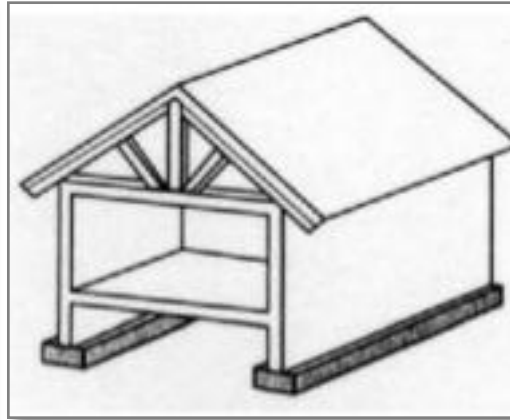
Foundation Systems Types



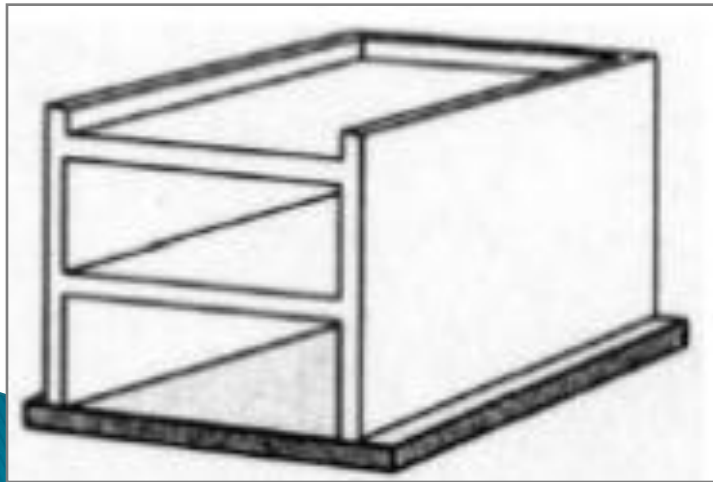
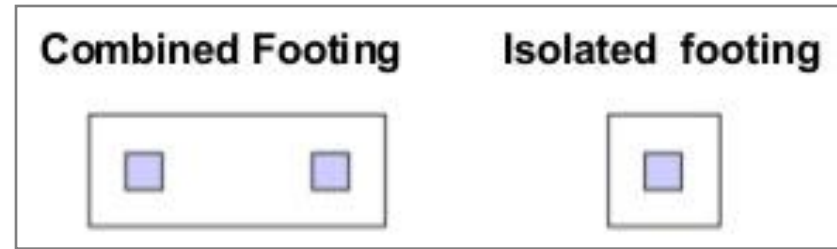
Foundation Systems Shallow Found.



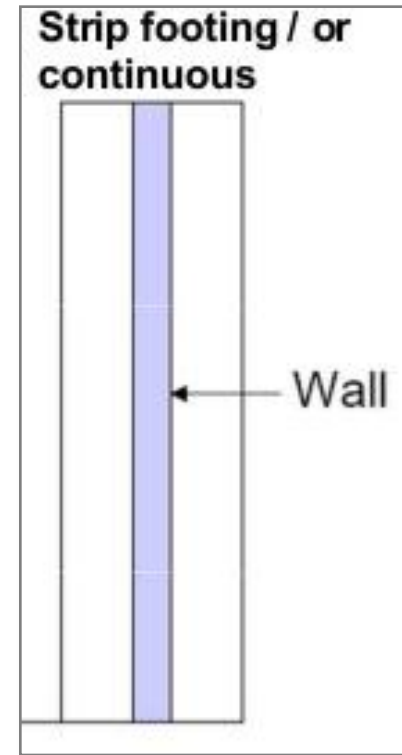
Isolated Foundation



Strip Foundation



Raft Foundation

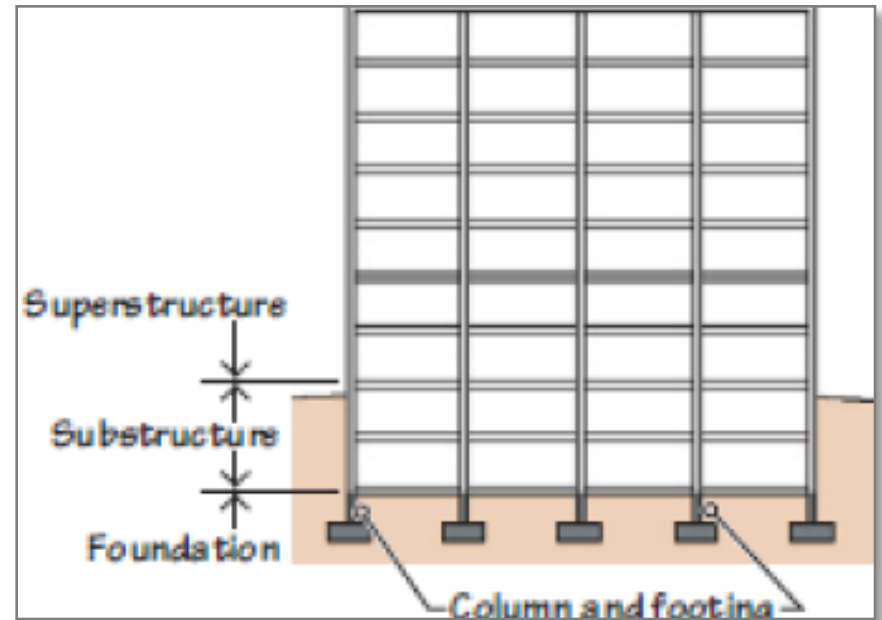
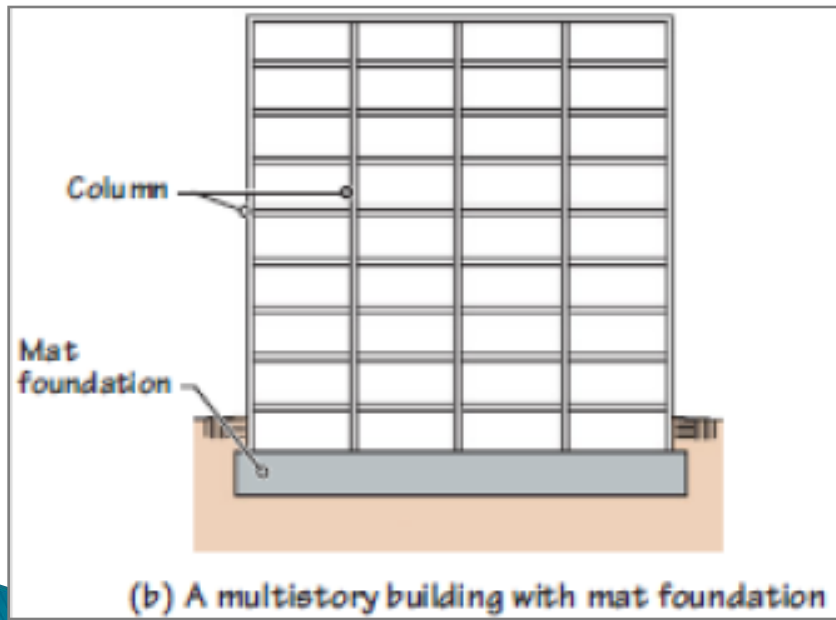


Foundation Systems Shallow Found.

There are two types of shallow foundations:

1- Foundation systems consisting of footing.

2- Monolithic concrete foundation under the building's entire footprint

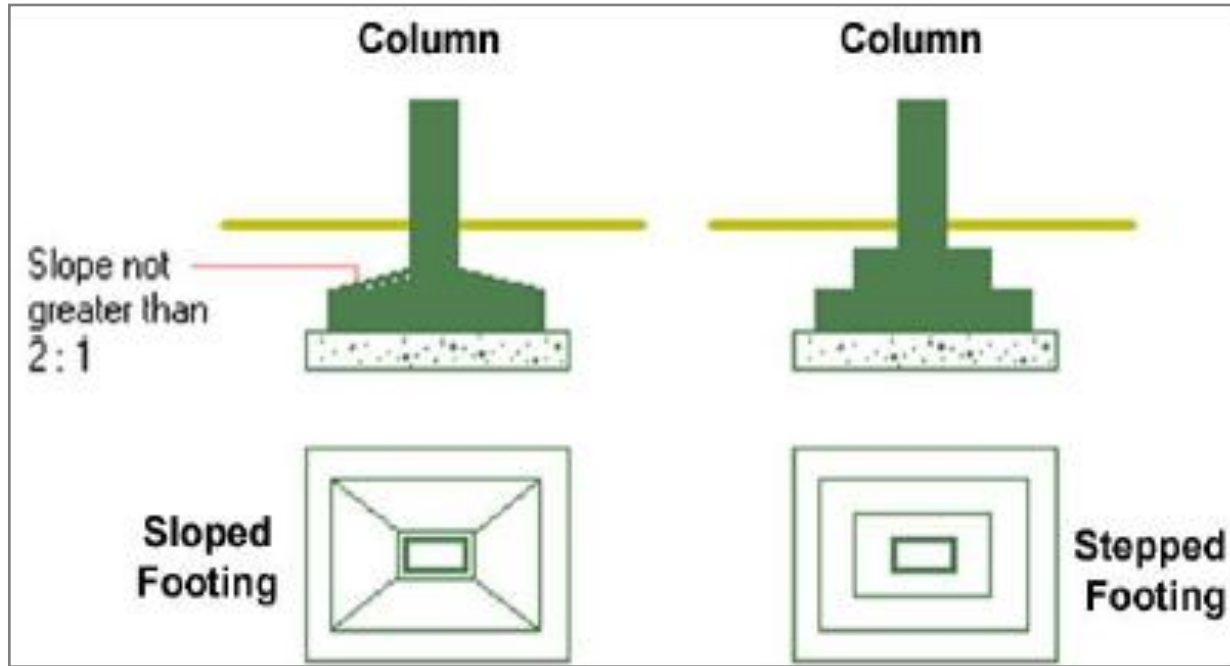


Shallow Foundation Isolated Found.

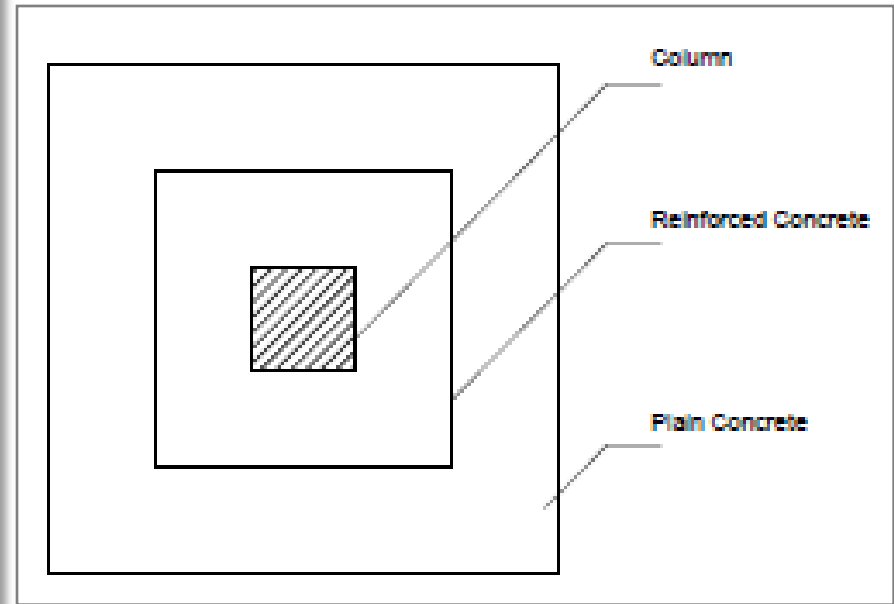
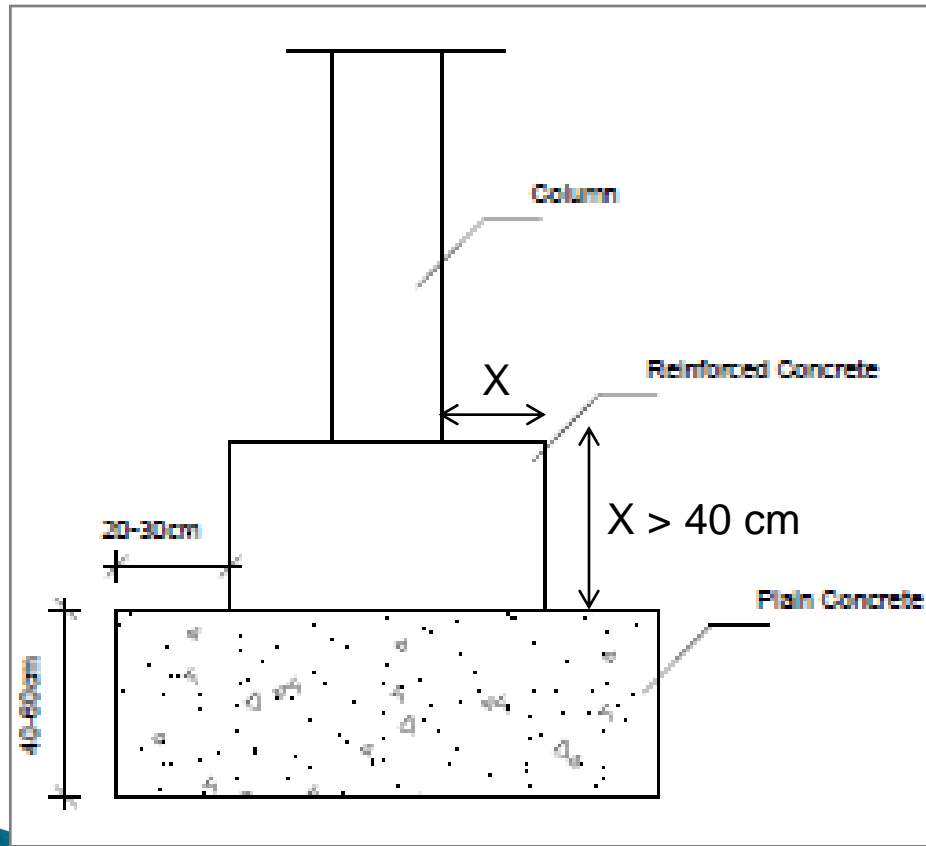
These are strips or pads used to transfer the loads from wall/columns to soil.



Shallow Foundation **Isolated Found.**



Shallow Foundation Isolated Found.

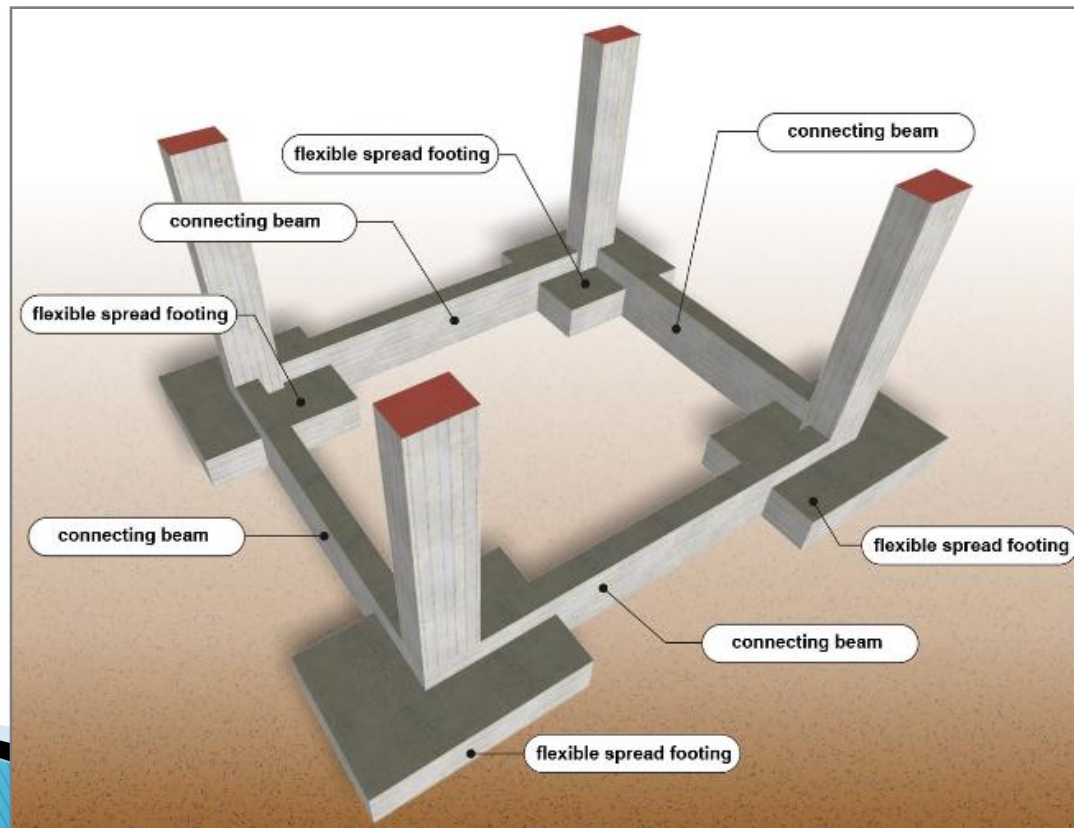


Shallow Foundation Isolated Found.

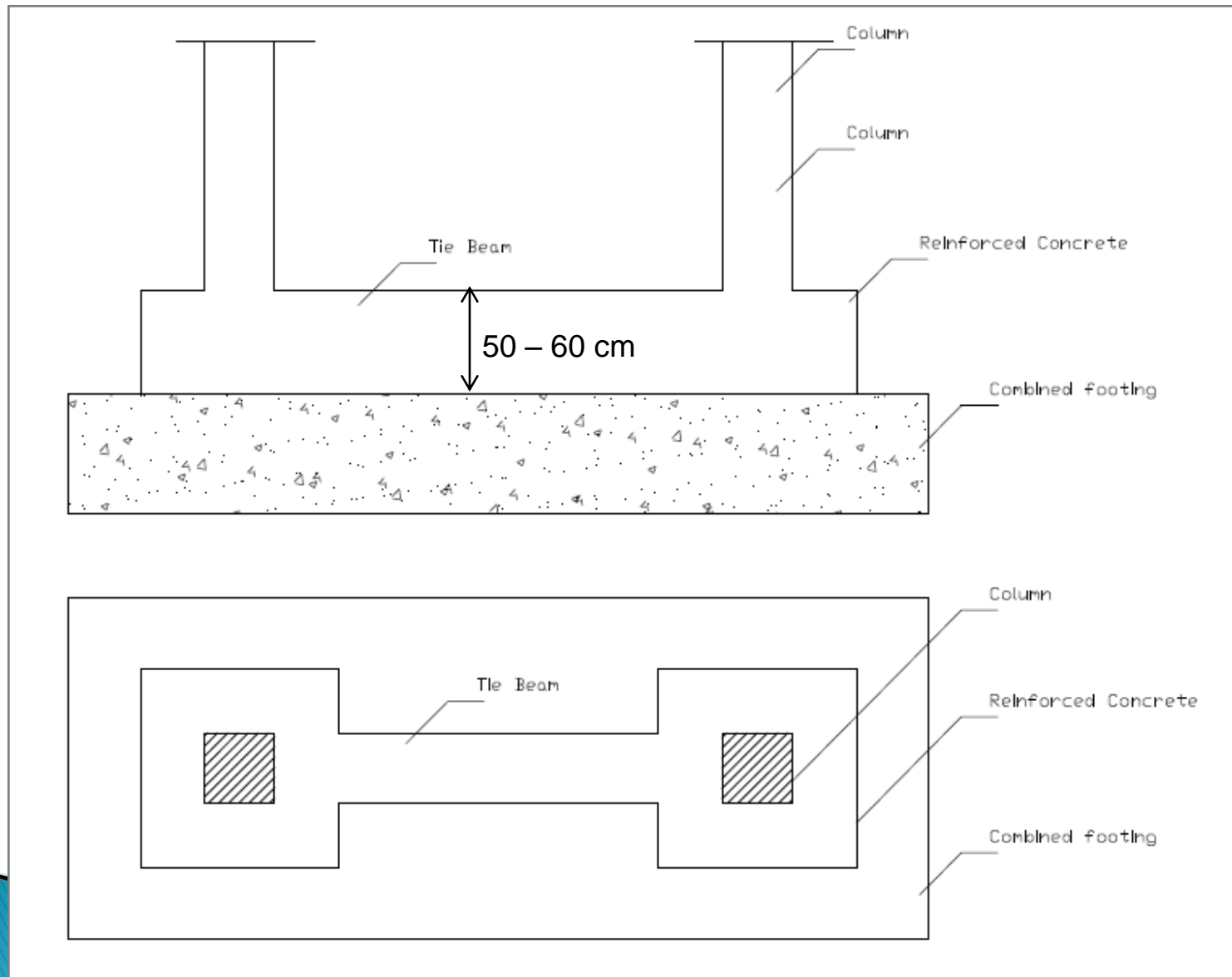
Connecting or Tie Beams:

Are necessary to prevent differential settlement.

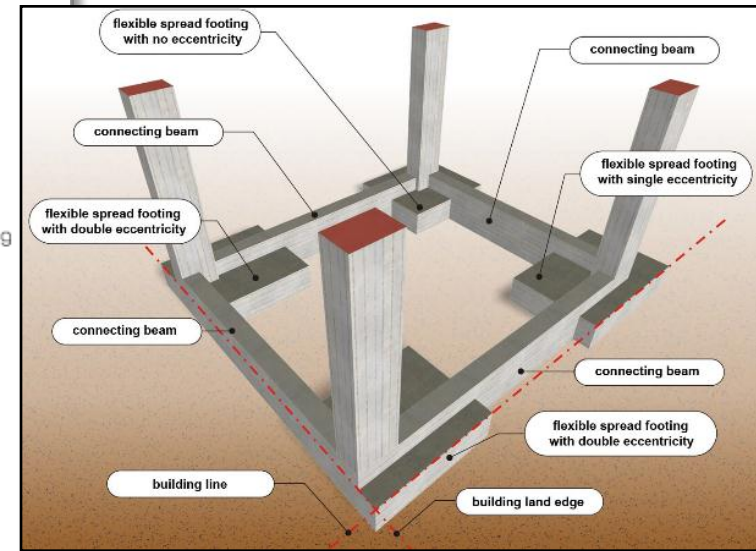
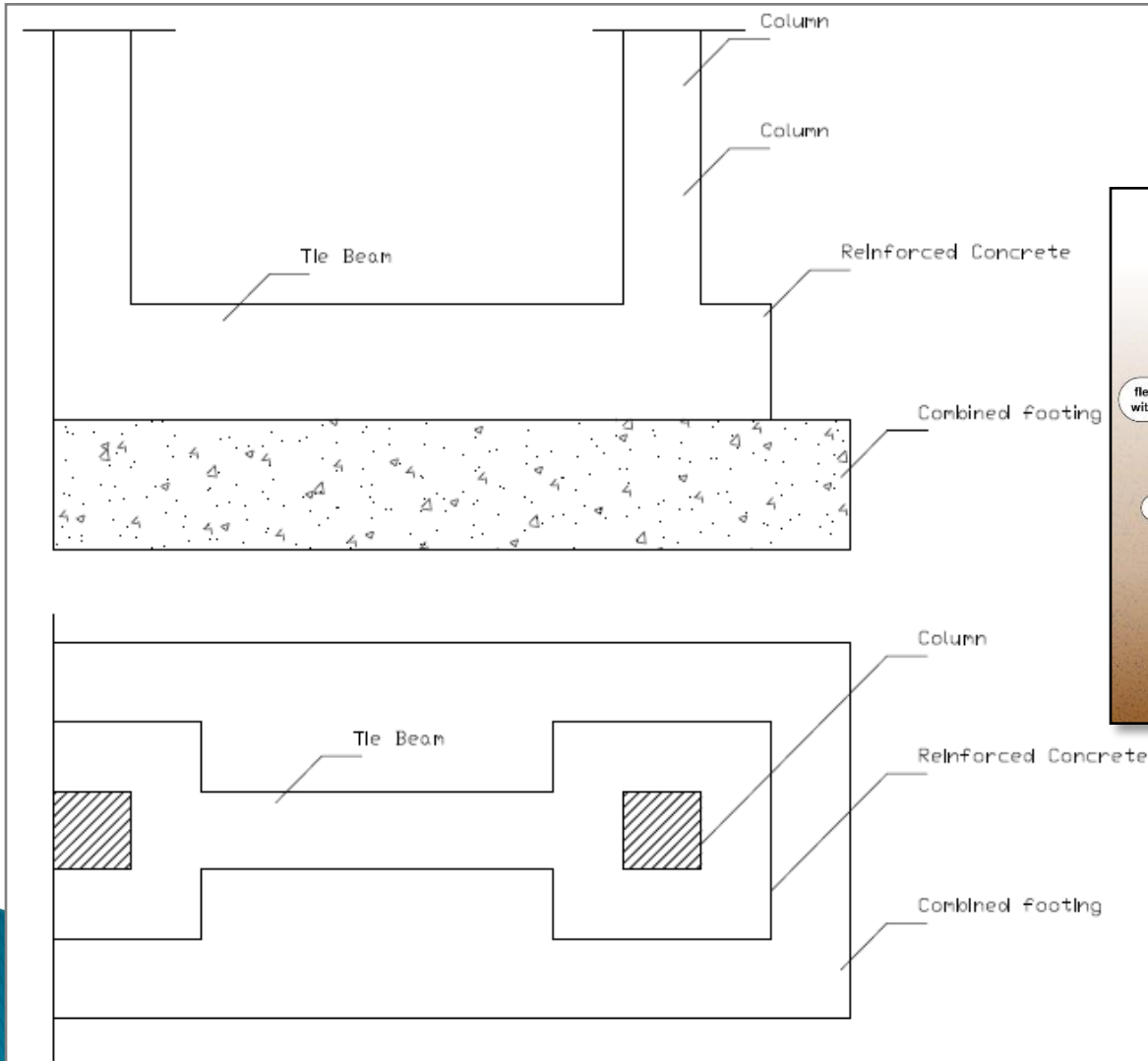
Tie beams could be at the same level as the reinforced footing or higher



Shallow Foundation Isolated Found.



Shallow Foundation Isolated Found.



Shallow Foundation Isolated Found.

Position of Tie Beams: (1)



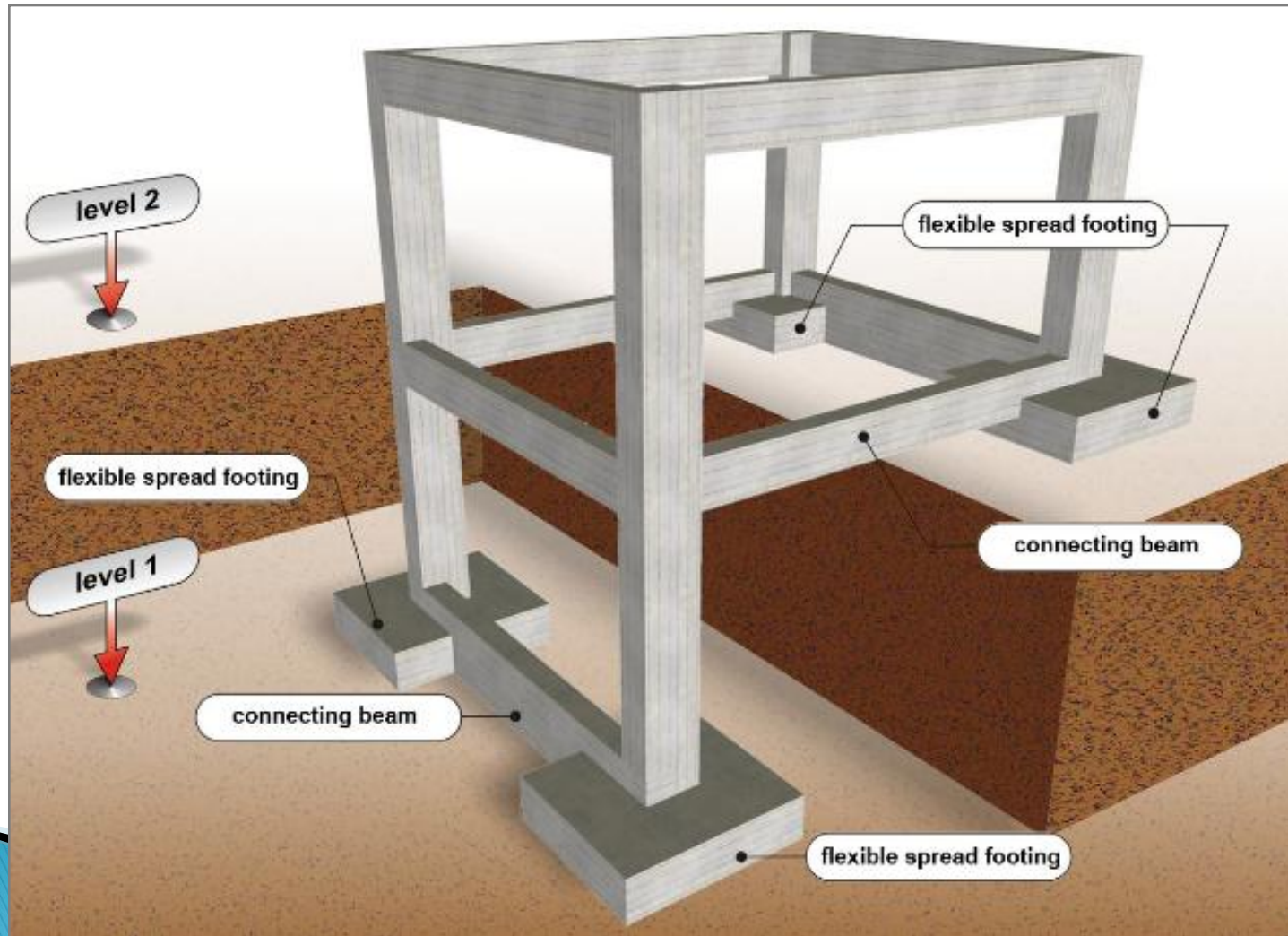
Shallow Foundation Isolated Found.

Position of Tie Beams: (2)



Shallow Foundation Isolated Found.

Position of Tie Beams: (3):



THANKS
