

What is the significance of permissible settlement? State the permissible settlement of isolated and raft foundation in clayey and sandy soils.

Permissible settlement is the amount of vertical movement that a structure can experience without causing damage or compromising its integrity. It is an important consideration in foundation design because excessive settlement can cause differential movement between structural elements, resulting in cracking, distortion, and other forms of damage.

The permissible settlement for a foundation depends on various factors such as the type of soil, the size and weight of the structure, and the level of acceptable risk. In general, the permissible settlement for isolated and raft foundations in clayey and sandy soils are as follows:

1. Isolated foundations in clayey soil: The permissible settlement is typically around 25-40 mm for residential and light commercial buildings, and up to 75 mm for heavy industrial buildings.
2. Isolated foundations in sandy soil: The permissible settlement is

typically around 12-25 mm for residential and light commercial buildings, and up to 50 mm for heavy industrial buildings.

3. Raft foundations in clayey soil: The permissible settlement is typically around 40-60 mm for residential and light commercial buildings, and up to 100 mm for heavy industrial buildings.

4. Raft foundations in sandy soil: The permissible settlement is typically around 25-40 mm for residential and light commercial buildings, and up to 75 mm for heavy industrial buildings.

It should be noted that these values are only general guidelines, and the permissible settlement for a particular foundation should be determined on a case-by-case basis using site-specific geotechnical data and engineering analysis. The ultimate goal is to ensure that the structure remains stable and functional over its intended design life, while minimizing the risk of damage or failure due to settlement.