



Module 3

Vizle

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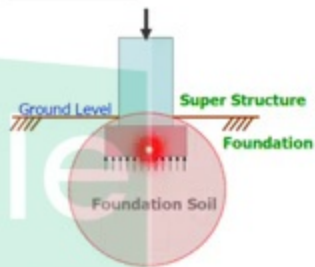
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Soil Bearing Capacity

- The term 'Bearing capacity of soil' is used to indicate the maximum load per unit area which the soil will resist safely without displacement





Important Terminologies related to Soil Bearing Capacity

- **Ultimate Bearing Capacity (q_u)** :-The ultimate bearing capacity is the gross pressure at the base Of the foundation at which soil fails in shear.
- **Net ultimate Bearing Capacity (q_{nu})** :- It is the net increase in pressure at the base of foundation that cause shear failure of the soil.

$$q_{nu} = q_u - \gamma D_f \text{ (overburden pressure)}$$

- **Net Safe Bearing Capacity (q_{ns}):**- It is the net soil pressure which can be safely applied to the soil considering only shear failure.

$$q_{ns} = q_{nu} / FOS$$

- **Gross Safe Bearing Capacity (q_s):**- It is the maximum pressure which the soil can carry safely without shear failure.

$$q_s = q_{nu} / FOS + \gamma D_f$$

- **Net Safe Settlement Pressure (q_{np}):**- It is the net pressure which the soil can carry without exceeding allowable settlement
- **Net Allowable Bearing Pressure (q_{na}):**- It is the net bearing pressure which can be used for design of foundation.

$$q_{na} = q_{ns} \quad ; \text{ if } q_{np} > q_{ns}$$

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It is also known as Allowable Soil Pressure (ASP).



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