

Load carrying capacity of Pile: 🧟



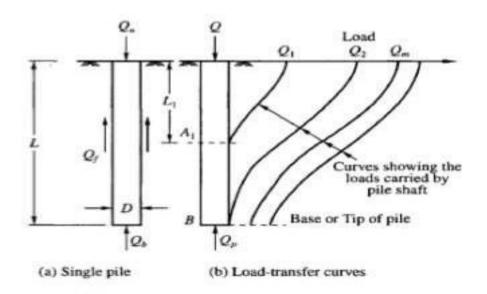
- * What is ultimate load bearing capacity?
- * What is allowable load and how is it determined?
- ✓ Ultimate load bearing capacity of a pile is defined as the maximum load which can be carried by a pile and at which the pile continues to sink without further increase of the load.
- ✓ The allowable load is the safe load which the pile can carry safely, which can be determined from ultimate load bearing capacity dividing by suitable F.O.S.





Load Transfer Mechanism

Fig. gives a single pile of uniform diameter d (circular or any other shape) and length L driven into a homogeneous mass of soil of known physical properties. A static vertical load is applied on the top. It is required to determine the ultimate bearing capacity Q, of the pile







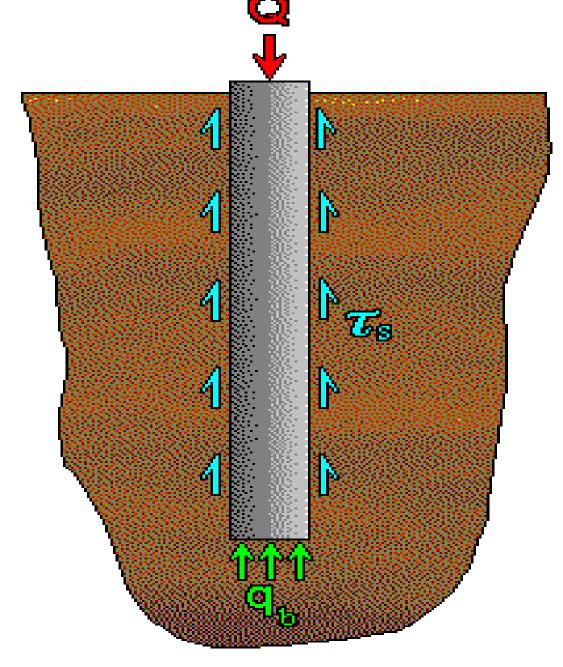
Methods of determining 'Load carrying capacity'

The load carrying capacity of a pile can be determined by the following methods:

- 1) Dynamic formulae
 - 2) Static formulae
- 3) Pile load tests, and
 - 4) Penetration test









Penetration Test



- The result of Dutch Cone Penetration Test can be applied with sufficient accuracy to determine the ultimate bearing capacity of piles in cohesion-less soils.
- > The following relation may be adopted:

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r_p = q_c and,
r_f = 2f_c
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where, q_c = unit resistance of Dutch Cone Penetrometer f_c = static skin friction on the shaft of the penetrometer