

Numerical Study of Modulus of Subgrade Reaction in Eccentrically Loaded Circular Footing Resting

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Abstract : This article is an attempt to present a numerically study of the behaviour of an eccentrically loaded circular footing resting on sand to determine its ultimate bearing capacity. A surface circular footing of diameter 12 cm (D) was used as shallow foundation. For this purpose, three dimensional models consist of foundation, and medium sandy soil was modelled by ABAQUS software. Bearing capacity of footing was evaluated and the effects of the load eccentricity on bearing capacity, its settlement, and modulus of subgrade reaction were studied. Three different values of load eccentricity with equal space from inside the core on the core boundary and outside the core boundary, which were respectively $e=0.75$, 1.5, and 2.25 cm, were considered. The results show that by increasing the load eccentricity, the ultimate load and the modulus of subgrade reaction decreased.

Keywords : circular foundation, sand, eccentric loading, modulus of subgrade reaction

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