

PARAMETRIC EVALUATION OF STIFFENED RAFT FOUNDATION ON HIGHLY EXPANSIVE SOIL

(SOIL-STRUCTURE INTERACTION)

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ABSTRACT: this paper introduces the comparable evaluation of the obtained design values (moments, shear, differential deflection) for a stiffened raft foundation founded on highly expansive soil. This evaluation highlights the reported design values resulted by using SLAB2 program that developed by Haug-1974 and post tensioning Institute (PTI) methods derived by Wray- 1978. SLAB2 program used for solving soil-structure interaction problem, its structure input parameters based on the common light residential building to be founded on these types of problematic soils in Sudan whereas the soil parameters were experimentally determined after intensive laboratory tests. The tests involved the tests used for determining the engineering properties, Oedometer and unconfined tri-axial for measuring their anticipated heave (y_m) and soil Young's modulus (E_s).

This assessment clarified that the computed SLAB2 design parameters reported in high values compared to that determined by PTI approach therefore PTI method doesn't suit those high expansive soils in Sudan.

Key words :-stiffened raft, expansive soil , SLAB2, Center Lift

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