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INFLUENCE OF SOIL AND FRAMED BUILDING ON INTERSECTIONS USING SOIL STRUCTURE INTERACTION ANALYSIS

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ABSTRACT

In the present study the soil interaction analysis was simulated using finite element method (FEM). The soil was considered as isotropic, homogenous and continuum material which is used to support foundation and superstructure. The raft foundation was chosen for ease of analysis as it may be treated as part of foundation soil itself due to its continuous associativity with the soil. The foundation soil and raft were modeled using the 4-noded isotropic element (4-noded 182 elements) whereas superstructure was modeled using two-dimensional, 2-noded beam element (2D-elastic element).A framed building was analyzed with constant factors such as no. floors and loading intensity etc. For this purpose, two sections between superstructure and raft and between raft and soil were considered. The effect of modulus of elasticity (E) of soil on deformations, stresses and strain was determined and compared. The stresses and strains were determined separately for concrete in raft and for the soil in the foundation.

KEYWORDS: Finite Element Method (FEM), Isotropic, Homogenous, Continuum Raft and Modulus of Elasticity