USE AND ABUSE OF SPRINGS TO MODEL FOUNDATIONS

Speakers: Rob Day and Joe Muccillo, Technical Directors, AECOM Australia Pty Ltd

Springs are widely used in structural modelling packages to represent the stiffness response of foundations. This method is a significant improvement on models which assume the foundation is a rigid fixed or pinned support, and assigning a foundation stiffness is essential to enable structural models to better identify load re-distribution and deflection induced stresses in structures. Unfortunately, nobody told foundation materials this, and for the most part, soil and rock stubbornly refuses to act like a spring. Soil and rock exhibit significant non-linearity in load-deflection behaviour; the stiffness of the foundation reduces in inverse proportion to the size of the loaded area; the stiffness in the centre of a loaded area is much less than near the edges or corners of a loaded area; and there are a range of deformations that occur independently of the applied load (for example shrink/swell movements, or time dependent consolidation). As a result of this, spring stiffness is one of the key areas of disagreement between Structural and Geotechnical Engineers. This presentation hopes to demystify this issue by putting forward the case from both the geotechnical and structural viewpoint with a representative from both camps. It will highlighting the importance of springs to structural models, the limitations of spring analogies from a geotechnical perspective, identify how these limitations can be overcome in some cases to allow structural engineers to use springs, and identifies cases where springs may not be appropriate and other methods should be considered.

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Time: Commencing at 6:00 pm (with refreshments at 5.30pm) and finishing at 7:30 pm
Where: Engineers Australia Vic Division Building, 21 Bedford St, North Melbourne
Cost: Free, refreshments provided


Attendance at this seminar contributes towards the EA’s requirements for Continuing Professional Development

Contact: Event Organiser: Rob Day 96531234 Secretary AGS: Chris Lyons Ph: 9668 5623