



Departmental Seminar
Department of Civil Engineering and Engineering Mechanics
Columbia University

Predicting Long-Term Deformation on Granular Geomaterials in Layered Systems

Tuesday, December 7th @ 2:30pm

644 MUDD



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This talk discusses layered soil system issues from earlier work by Professor D. Burmister at Columbia University to recent performance prediction of road or railway foundations on major transportation infrastructures. Better understanding of in-situ mechanical behavior of road foundations is very important to predict long-term effects on the system performance. In order to do that, resilient stiffness characterization of geomaterials is needed to properly adopt such mechanistic analysis under both traffic and environmental loadings. Therefore, in-situ monitoring data from KHC test road in Korea was used to analyze the non-linear response using finite element method with a selected constitutive model of foundation geomaterials are verified with the field data. Laboratory evaluation of rutting on analysis is also presented for predicting load limits and permanent deformation on conventional flexible pavements. Mechanistic-empirical analysis using non-linear finite element program was used to evaluate the structural adequacy and long-term deformations. Lastly, a possibility to use of unsaturated soil mechanics within this issue will be discussed.

