



DEPARTMENT OF  
CIVIL AND ENVIRONMENTAL  
ENGINEERING AND GEODETIC SCIENCE

## T.H. Wu Distinguished Lecture

### *Uncertainty, Reliability, and Foundation Engineering (or RBD - The Good, Bad & Ugly)*

Dr. Fred H. Kulhawy, P.E., G.E., Distinguished Member, ASCE  
Professor Emeritus of Civil/Geotechnical Engineering  
Cornell University - Ithaca, New York



*Dr. Kulhawy is an internationally-known educator, researcher, and consultant with over 45 years of experience in geotechnical engineering. He has lectured and practiced around the world, and his seminal research is widely known and adopted. He has garnered numerous awards for his work from ASCE, ADSC, DFI, IEEE, Canadian Geotechnical Society, and others, including the ASCE Terzaghi Award and Norman Medal, election to Distinguished Membership in ASCE, and the CGS Meyerhof Award.*

**Abstract:** During the 1960s, the first civil engineers began to focus on the very fundamental role of uncertainty in geotechnical engineering practice and design. This seminal work illustrated clearly that proper geotechnical design should be based on probabilistic, not deterministic, principles. Nearly five decades later, our profession is still trying to address this reality. This lecture focuses on some of these issues, with particular emphasis on reliability-based design (RBD) of foundations and the necessary calibrations behind RBD that are critical but are largely "invisible". Some key methods of calibration are discussed, including issues ranging from the basic assumptions involved, distributions of important variables, uncertainties in both load and resistance, target reliability, and many other relevant factors. The importance of clear and thorough property characterization is particularly stressed. The goal is to assist engineers in understanding the level of sophistication, or lack thereof, in different approaches to calibrations, which then translates into the degree of confidence one can have in a particular calibration or code. The "good, bad, and ugly" issues involved are noted, as seen by the writer during thirty years of work on this topic.

***This lecture is free, although preregistration is highly encouraged.***

To reserve your space contact Carol Scott at [scott.30@osu.edu](mailto:scott.30@osu.edu) - 614-292-3533. One (1) PDH credits will be offered for attending the entire lecture and a certificate will be provided.

***April 5, 2011 - 4:00PM to 5:00PM  
Room 100 Scott Lab - 201 W 19<sup>th</sup> Avenue***