

2008

# Friedman Family Visiting Professional Program Report

*Mr. Nathan Gould-ABS Consulting*

University of Wyoming

2008

## A. Introduction

The University of Wyoming EERI Student Chapter invited Dr. Nathan Gould of ABS Consulting to speak on Performance Based Seismic Design on April 16<sup>th</sup>, 2008 as part of the Friedman Family Visiting Professionals Program. Gould kindly accepted the invitation.



Figure 1: Nathan Gould

## B. Seminar

Dr. Gould's presentation was titled "Performance Based Seismic Design." During the presentation, he introduced the concept of Performance Based Design (PBD), how it relates to design requirements of the International Building Code (IBC), the difference between deterministic and probabilistic design and how PBD has been used in the retrofit of existing structures in seismic regions. After briefly explaining the concept of PBD, he discussed how PBD can be used for design and how it satisfies the IBC requirements for life safety. PBD is used to design for a certain level of allowable damage after a significant seismic event. The design levels range from fully operational to near collapse (life safety), with fully operational being the most expensive to achieve and near collapse the least expensive but all levels meet the IBC requirement of life safety. The distinction between probabilistic and deterministic is important to understand in the seismic design of structures. Probabilistic design uses the probability of a certain earthquake occurring in a particular location while deterministic is used where significant data is available with regards to the size of

earthquake. Gould also presented examples of where he has used PBD to retrofit structures throughout the United States.



Figure 2: Seminar



Figure 3: Seminar

The presentation was well attended by both faculty and students at the University of Wyoming. A short question and answer session followed the presentation.

### C. Social Activities

Following the question and answer session, lunch was provided by the University of Wyoming at Jeffrey's Bistro in Laramie. Present at lunch were EERI Student Chapter President Vanessa Storlie, Treasurer Evan O' Toole, post-doctoral researcher Saadet Toker and faculty members Jay Puckett and Jennifer Tanner. Following lunch, a tour of the structural engineering research facilities at the University of Wyoming was provided.



Figure 4: Lunch at Jeffrey's