

Faculty Update



Monitoring the Performance of Tall Buildings

In his poem *Skyscraper*, Carl Sandburg wrote "By day the skyscraper looms in the smoke and sun and has a soul." The same skyline that often inspired Sandburg's writing has

long been the prototype for tall-building design around the world. It is only logical that Chicago continues to serve as a focal point in the structural monitoring and evaluation of tall buildings and their movements. **Ahsan Kareem**, Robert Moran Professor and Chair of the Department of Civil Engineering and Geological Sciences, and Tracy Kijewski-Correa, a graduate student in the department, are leading a National Science Foundation study of tall buildings in Chicago, monitoring the



The monitoring system used in Chicago by Notre Dame researchers includes an anemometer, accelerometer, and differential Global Positioning System with real-time kinematic potential and a web portal for secured access to wind speed data, as well as building displacement and acceleration information.

real-time response of these structures. Partnering with Skidmore, Owings & Merrill, LLP, a leading structural design firm in Chicago, and the Boundary Layer Wind Tunnel Laboratory of the University of Western Ontario, they are seeking to exploit the latest technological developments in monitoring devices to better understand the characteristic responses of tall buildings. When successful they will have helped to usher in a

new era in high-rise structures — one that embraces full-scale monitoring as a tool to enhance design, and safety, of the urban environment.

For more information on the real-time response monitoring of tall buildings at Notre Dame, visit the NatHaz Modeling Laboratory site at <http://www.nd.edu/~nathaz>.