



# Forensic Engineering: Investigating Structural Failure

**Liling Cao**  
Ph.D., P.E., LEED AP BD+C  
Principal, Thornton Tomasetti

## Abstract:

Forensic engineering uses the scientific approach and advanced technology to resolve problems in materials, equipment, products or structures. Forensic structural engineering often involves comprehensive investigation of existing structural design, construction and service conditions to identify the root cause of failure. The investigation aims at preventing reoccurrence of damage and ensuring the structural stability for public safety. To assist in the investigation, a consortium of experienced engineers from multi-disciplinary areas makes coordinated efforts by using various analysis and simulation tools to dive deep into the structural issue. This presentation will discuss a case study of forensic investigation that involves evidence collection, data processing, failure analysis and collapse simulation.

## Bio:



Dr. Liling Cao joined Thornton Tomasetti in 2007 and leads the Advanced Analytics Group in the Forensics Practice. She has extensive experience analyzing various types of structural performance under the effects of typical to extreme loads. Dr. Cao is skilled in damage assessment, material durability and service life assessment, structural testing, failure investigation, structural stabilization and rehabilitations. She works with building owners and contractors to address structural and material issues that arise in design, construction and service conditions. She provides litigation support for design and construction investigations involving a wide range of structures including commercial and residential buildings, parking garages, bridges, temporary structures and industrial facilities. In addition to being part of the

Forensics practice, Dr. Cao works closely with research entities on research and development programs, and leads the firm's innovation and development committee. She received her Ph.D. from Lehigh University in 2007, and she is an adjunct professor teaching Forensic Engineering at Manhattan College in New York.

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RSVP: <https://go.cee.illinois.edu/RSVP-Seminar-by-Dr-Liling-Cao>