

Multiple-hazard Design and Mitigation for Infrastructure

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Although in many parts of the country one natural hazard dominates, in certain areas multiple hazards may pose a significant threat to infrastructure. The design and construction practices should address the overall risk to infrastructure from multiple hazards to achieve design strategies and risk levels that are consistent with stakeholder expectations and social objectives. When exposed to hurricanes, earthquakes, flood, and other natural hazards, infrastructure may sustain substantial damage. To mitigate risk from natural hazards cost effectively, decision-making tools must be based on a better understanding of infrastructural performance with different levels of hazard-resistant design practices. The focus of this presentation is to demonstrate multiple-hazard design and mitigation for resilient and sustainable infrastructure.

Numerous studies warn that the built environment will be affected by climate change through rising sea levels and altered patterns of natural hazards. This presentation also discusses the assessment of economic damage due to the change in natural hazard patterns resulting from climate change. Several possible adaptation strategies to such an effect are investigated to achieve a sustainable built environment.



Bio: Dr. Yue Li is an Associate Professor in Civil Engineering at Michigan Technological University, where he joined as the Donald and Rose Ann Tomasini Assistant Professor in 2005. He earned his Ph.D. degree in Civil Engineering from Georgia Institute of Technology in 2005. Dr. Li's research interests include resilient civil infrastructure and sustainability, natural and man-made hazard mitigation, structural monitoring and condition assessment, and performance-based engineering. He is an Associate Editor of ASCE Journal of Structural Engineering. He received Michigan Technological University Research Excellent Fund Award in 2008. He has worked as a structural engineer for five years, and was involved in the design of new international terminal at Hartsfield-Jackson Atlanta International Airport.