Damage assessment, Recovery and Resilience of Infrastructure Systems under Natural Disasters

Mohanad Khazaali, Research Assistant, Dept. of Civil and Environmental Engineering, Lehigh University (maa314@Lehigh.edu)

Paolo Bocchini, Associate Professor and Director of Graduate Programs, Dept. of Civil and Environmental Engineering, Lehigh University (paolo.bocchini@lehigh.edu)

Introduction

As the site of a tower, it is typical to find also nonstructural accessories (antenna and microwave), cables, a shelter, BTS and a generator.

Resilience is the ability to prepare for anticipated hazards, adapt, withstand and recover rapidly from disruptions.

• Telecommunication systems are of considerable importance due to the major social and economic value of their services.
• The welfare of communities demands reliable and uninterrupted operations of telecommunication towers.
• Damage of such systems under strong wind has significant effects on business continuity and leads to economic losses.

Results and discussion

Record the EDP for each member

Motivation of the study

• Telecommunication systems are of considerable importance due to the major social and economic value of their services.
• The welfare of communities demands reliable and uninterrupted operations of telecommunication towers.
• Damage of such systems under strong wind has significant effects on business continuity and leads to economic losses.

Results and discussion

Aerodynamic wind formula

\[ F_w = \frac{1}{2} \rho \cdot V^2 \cdot A_p \]

Task-1: Generate a repository of synthetic wind velocity time histories

Task-2: Development of mechanical models for telecommunication towers

Record the EDP for each member

Failure modes

The frequent failures of these systems under wind hazards and their associated significant economic losses underline the importance of predicting the structural and nonstructural performance of each component.

Results and discussion

Task-2: Development of mechanical models for telecommunication towers

Aerodynamic wind formula

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Results and discussion

Task-3: Structural fragility & Task-4: Restoration analysis of telecommunication system

Acknowledgement

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(www.praisys.org)

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Task-5: Structural fragility & Task-4: Restoration analysis of telecommunication system

Task-1: Generate a repository of synthetic wind velocity time histories

Task-2: Development of mechanical models for telecommunication towers

Task-3: Development of mechanical models for telecommunication towers

Task-4: Model the structural intactness of telecommunication systems