

Mitigating the Potential for Progressive Disproportionate Structural Collapse

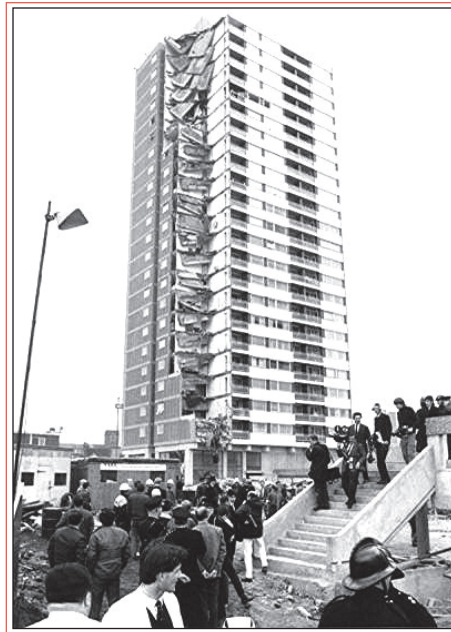
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Special Issue Editors: Kenneth L. Carper, Washington State University, and Robert Smilowitz, Weidlinger Associates
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The twelve papers in this collection accurately represent the current state of practice and research regarding the subject of progressive collapse and the design implications of emerging codes and standards.

From the Editorial

“Although there is debate among design professionals as to the need for more specificity given the limited number of historic events that resulted in structural collapse, U.S. government construction practice is demanding greater attention to damage state design requirements and developers of commercial property are demanding greater robustness of their major construction projects. The American Society of Civil Engineers (ASCE) and the National Institute of



Progressive structural collapse of a residential tower caused by a natural gas explosion. (Ronan Point, UK, 1968).

Standards and Technology (NIST) are leading the profession towards standards that may some day become design requirements.

The following papers address different technical challenges and observations associated with increased structural robustness. Some of these papers help define the issues, while others relate the practices mandated by different criteria. Other papers present observations based on bomb damage data and controlled demolition practice. Risk mitigation for a range of hazardous conditions is compared and the means to describe the consequences of low probability events are identified. Many of these papers address the different analytical approaches that may effectively predict the performance of structures as a result of damage state conditions.”

Papers Include

Editorial

“Progressive Collapse: Emerging Challenges for the Design Professional”
by Robert Smilowitz

Technical Papers

“Preventing Disproportionate Collapse”
by R. Shankar Nair

“Mitigating Risk from Abnormal Loads and Progressive Collapse”
by Bruce R. Ellingwood

“The Behavior and Design of Commercial Multi-Storey Buildings Subjected to Blast”
by M. P. Byfield

“Murrah Building Bombing Revisited: A Qualitative Assessment of Blast Damage and Collapse Patterns”
by John D. Oстераas

“On Practical Means for Simplified Analyses of Disproportionate Collapse Potential”
by Donald O. Dusenberry and Ronald O. Hamburger

“Statical Equivalency in Progressive Collapse Alternative Path Analysis: Reducing Conservatism While Retaining Structural Integrity”

by Peter Ruth, Kirk A. Marchand, and Eric B. Williamson

“Comparison of Various Procedures for Progressive Collapse Analysis”

by Shalva Marjanishvili and Elizabeth Agnew

“Modeling the Impact of Failed Members for Progressive Collapse Analysis of Frame Structures”

by G. Kaewkulchai and Eric B. Williamson

“A Study of Mitigation Strategies for Progressive Collapse of a Reinforced Concrete Commercial Building”

by John Abruzzo, Alain Matta, and Gary Panariello

“Progressive Collapse: An Implosion Contractor’s Stock in Trade”

by Mark Loizeaux and Andrew E. N. Osborn

“Global System Considerations for Progressive Collapse, with Extensions to Other Natural and Manmade Hazards”

by Mohammed Ettouney, Robert Smilowitz, Margaret Tang, and Adam Hapij

“Progressive Collapse of Structures: Annotated Bibliography and Comparison of Codes and Standards”

by Osama A. Mohamed

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ASCE American Society
of Civil Engineers

Bridges



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