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## Modeling the impact of failed members for progressive collapse analysis of frame structures

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**Author(s):** [Kaewkulchai G](#) (Kaewkulchai, G.), [Williamson EB](#) (Williamson, E. B.)

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**Abstract:** During the past decade, increasing attention has been focused on the design of buildings to resist progressive collapse. Previously, the authors presented a nonlinear solution procedure for progressive collapse analysis of planar frame structures. In the current study, a modeling strategy to account for the impact of failed members against other structural components is developed to extend the capabilities of the initial models. Assumptions made in approximating the effects of impact on the overall behavior of frame structures are discussed. An example illustrating the importance of accounting for the effects of impact on predicting progressive collapse is also given. Results indicate that the impact velocity plays the most significant role in causing failure of intact beam elements.

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**Reprint Address:** Kaewkulchai, G (reprint author), Univ Texas, Dept Civil Environm & Architectural Engrn, 1 Univ Stn, C1748, Austin, TX 78712 USA

**Addresses:**

1. Ubonratchathani Univ, Dept Civil Engrn, Ubon Ratchathani 34190, Thailand

**E-mail Addresses:** [griengsak@ubu.ac.th](mailto:griengsak@ubu.ac.th), [ewilliamson@mail.utexas.edu](mailto:ewilliamson@mail.utexas.edu)

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Scott MH, Fenves GL [Krylov Subspace Accelerated Newton Algorithm: Application to Dynamic Progressive Collapse Simulation of Frames](#) JOURNAL OF STRUCTURAL ENGINEERING-ASCE 136 5 473-480 MAY 2010

Liu YX, Xu L, Grierson DE [Influence of Semi-Rigid Connections and Local Joint Damage on Progressive Collapse of Steel Frameworks](#) COMPUTER-AIDED CIVIL AND INFRASTRUCTURE ENGINEERING 25 3 184-204 APR 2010

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