

## **Fragility Assessment for Torsionally Asymmetric Buildings in Plan**

**Authors :** S. Feli, S. Tavousi Tafreshi, A. Ghasemi

**Abstract :** The present paper aims at evaluating the response of three-dimensional buildings with in-plan stiffness irregularities that have been subjected to two-way excitation ground motion records simultaneously. This study is broadly-based fragility assessment with greater emphasis on structural response at in-plan flexible and stiff sides. To this end, three type of three-dimensional 5-story steel building structures with stiffness eccentricities, were subjected to extensive nonlinear incremental dynamic analyses (IDA) utilizing Ibarra-Krawinkler deterioration models. Fragility assessment was implemented for different configurations of braces to investigate the losses in buildings with center of resisting (CR) eccentricities.

**Keywords :** Ibarra-Krawinkler, fragility assessment, flexible and stiff side, center of resisting

**Conference Title :** ICCSEE 2016 : International Conference on Civil, Structural and Earthquake Engineering

**Conference Location :** Barcelona, Spain

**Conference Dates :** October 03-04, 2016