عنوان مقاله:

COMPARISON OF THE EARTHQUAKE RESILIENCE OF ECCENTRICALLY AND CONCENTRICALLY BRACED FRAMES BUILDINGS

محل انتشار:

هشتمین کنفرانس بین المللی زلزله شناسی و مهندسی زلزله (سال: 1398)

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خلاصه مقاله:

Special concentrically and eccentrically Braced Frame (SCBF & EBFs) systems are widely used in steel structures. Choosing between these two lateral loading systems to deal with the seismic loads is one of the major challenges of the engineers before the structure construction. Various criteria have been proposed to reach a proper decision in the field of choice between these two bracing systems. In recent years, the concept of seismic resilience has been presented as a novel criterion for designing and evaluating the structure s performance. Resilience is defined as a normalized function, which indicates the structuring capacity to preserve the performance level or utilization in a period of time including the repair period after damage due to a severe event. Therefore, this criterion can be a powerful tool for evaluating structures and making constitutional decisions about structure construction. In the present research, two braced frames systems based on the resilience criteria are compared. The resilience of the studied buildings using the proposed method to calculate the functionality and modified downtime based on REDi is evaluated. The results of the present study show that as the earthquake hazard level increases, the resilience of structures has decreased. This decrease in concentrically braced structure is greater than in eccentrically braced structure. Resilience of eccentrically braced structures at SLE and DLE seismic hazard level was higher than .concentrically braced structure. This difference is greater in SLE seismic hazard level

کلمات کلیدی:

Seismic resilience, Loss assessment, Downtime assessment, Decision making, Seismic analysis, Braced frames