

عنوان مقاله:

Influence of geometric parameters on the behavior of steel moment-resisting frames with reduced web beams
(RWBS)

محل انتشار:

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خلاصه مقاله:

Steel Moment-resisting Frames (SMF) are one of the most widely used structural systems in mid-rise buildings to resist earthquake seismic loads. Nevertheless, research has shown that this structural system's most remarkable weakness is the lack of ductility in beam to column connection zones. In order to resolve this defect, an approach followed in recent years has been to weaken the beam by making openings in its web. Various studies have shown that providing web openings can shift the stresses and deflections away from the connection, thereby creating Vierendeel plastic hinges in the reduced section, which can significantly increase the ductility and energy absorption capacity of the connection. This paper aims to analyze the effect of geometric parameters on damage pattern and strength of moment-resisting frames with web openings by performing nonlinear static analysis on various models (finite element method (FEM).

کلمات کلیدی:

Steel moment-resisting frame (SMF), Seismic behavior, Reduced web beam section (RWBS), Damage Index, Finite Element Analysis, Vierendeel mechanism, Extremely low cycle fatigue (ELCF), Connection ductility

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