

Collapse Performance of Steel Frame with Hysteric Energy Dissipating Devices

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Abstract : Energy dissipating devices (EDDs) have become more popular as seismic-force-resisting systems for building structures. However, there is little information on the collapse capacities of frames employing EDDs which are an important criterion for their seismic design. This study investigates the collapse capacities of steel frames with TADAS hysteric energy dissipative devices (HEDDs) that become an alternative to steel braced frames. To do this, 5-story steel ordinary concentrically braced frame and steel frame with HEDDs are designed and modeled. Nonlinear dynamic analyses and incremental dynamic analysis with 40 ground motions scaled to maximum considered earthquake are carried out. It is shown from analysis results that the significant enhancement in terms of the collapse capacities is found due to the introduction HEDDs.

Keywords : collapse capacity, incremental dynamic analysis, steel braced frame, TADAS hysteric energy dissipative device

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