عنوان مقاله:

Performance Evaluation of Curved-TADAS Damper on Seismic Response of Moment Resisting Steel Frame

محل انتشار:

ماهنامه بین المللی مهندسی, دوره 33, شماره 1 (سال: 1399)

تعداد صفحات اصل مقاله: 13

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خلاصه مقاله:

In this study, the performance of triangular added damping and stiffness (TADAS) dampers combined with curved dampers (Curved-TADAS damper) is evaluated in moment resisting steel frame (MRSF). These dampers are passive and install in the beam-column connection region. Variable parameters of this study involve the width of curved damper (50, 75 and 100 mm), the thickness of TADAS damper (5 and 10 mm) and the number of TADAS damper (2, 4 and 6). Evaluation of MRSF was performed using the finite element method by ABAQUS. Two different experimental studies were used in order to evaluate the validity of the numerical simulation method and a suitable agreement was obtained. The response of the frames in different modes was compared with parameters such as energy dissipation, strength, stiffness, hysteresis damping ratio, and ductility. In the end, the performance of the proposed dampers was compared with the curved damper. The results show that Curved-TADAS dampers reduce the structural responses to seismic loading and prevent structural failure due to the dissipation of a large amount of seismic input energy. The function of these systems is such that, by performing special deformations, they absorb and deplete a large amount of earthquake input energy of the structure.

کلمات کلیدی:

Curved Damper, Triangular Added Damping and Stiffness, Beam-Column Connection, Moment Resisting, Steel frame, Finite Element