عنوان مقاله:

Experimental and Analytical Studies on the Infilled Frames with Frictional Sliding Fuses

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نویسندگان:

M. Mohammadi - *IIEES*

V. Akrami - *Sharif University of Technology*

R. Mohammadi - *University of Tehran*

خلاصه مقاله:

Experimental and analytical investigations have been conducted on a new type of infilled frames with Frictional Sliding Fuses (FSF). The results show that these infilled frames have adjustable strength and high ductility similar to other structural elements. Furthermore, the ultimate strengths and deformation capacities of such infills are much more than regular similar fuse-less infilled frames. To study the behavior of such infilled frames in out of plane direction, a specimen was loaded transversally after being failed by in-plane loadings and having the experience of ۶% drift in this direction. The results reveal that the infill has sufficient strength against out of plane components of regular earthquakes. The infill with the proposed configuration of this study is modeled by finite element method, in ABAQUS, to study the influence of the fuse sliding strength on its ultimate strength. It is shown that the ultimate strength is raised linearly by increasing the sliding strength of the fuse. In summary, the results confirms that such infilled frames can be regarded engineered for their high ductility as well as the capability of being adjusted for a desired strength.

کلمات کلیدی:

Engineered Infill, Steel Frame, Frictional Sliding Fuse (FSF), Out of Plane, Strength