

عنوان مقاله:

Influence of Column Section on the Seismic Behavior of Special Concentrically Braced Frames

محل انتشار:

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خلاصه مقاله:

Steel braced frames are commonly used lateral-load resisting systems in design codes. Special concentrically braced frames (SCBFs) are increasingly used in seismic regions in recent years due to their satisfactory behavior in the 1994 Northridge Earthquake. In and uncertainty as to the performance of special moment resisting frames after the 1994 SCBFs, the braces are connected to the beams and columns by gusset plate connections, and energy dissipation is provided by the tensile yielding and post buckling deformation of the brace. In recent years, a number of studies have examined different factors, which influence the performance of SCBFs. Most past experiments focused on the behavior of the gusset plate and the brace member. This study is carried out to investigate the effect of column section and the flexibility of the connection region caused by that on the overall behavior and performance of the system. Joint flexibility exists when the column is composed of double column sections or when the brace is connected to the box shape columns. The FE numerical model and the concept of plastic equivalent strain were used to predict the lateral load capacity, frame ductility capacity, and possible failure modes. A parametric study was performed to examine the influence of column section properties on the performance of special concentrically braced frames. The results showed that when the moment of inertia of the column is constant, the effect of column section and its local flexibility is more noticeable on the ductility capacity in comparison to the load capacity of the frame.

کلمات کلیدی:

Steel concentrically braced frames, Seismic behavior, column section

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