

عنوان مقاله:

Studying the steel plate shear walls stiffness and strength with single opening

محل انتشار:

کنفرانس بین المللی پژوهش های نوین در علوم مهندسی (سال: 1395)

تعداد صفحات اصل مقاله: 24

نویسندگان:

H. H. Seresty - MA student in Tabari higher education institute of Babol

L. Kalani Sarokolayi - Professor assistant and faculty of Tabari higher education institute of Babol

.S Gholampour - Professor assistant in Azad university of Ghaemshahr

خلاصه مقاله:

Steel plate shear walls (SPSWs), as a lateral-force-resisting system, are of a high stiffness and strength. In some cases constructing this system, the openings are produced due to architectural reasons and need to accessibility as well. In this study, the dependence of stiffness and strength of SPSWs with single opening on shape, size and position of opening is investigated. Regarding this purpose, different specimens of SPSWs with single opening and diverse shape, size and position of opening in each of them are analyzed under nonlinear finite element model. Based on the results obtained, it can be proposed that the stiffness and strength of SPSW with single opening is dependent on the size of opening most of all so that, for small sized openings, the effect of shape and position of opening on the stiffness and strength of SPSW can be overlooked. However, circular openings have more stiffness and strength when the opening is big with fixed size and location. Meanwhile, the position of square, rectangular and especially circular openings has less effect on the stiffness and strength of SPSW with opening. In the end, linear equations were calculated for conservative estimation of stiffness and strength of SPSWs with single opening for each shape, size and position. It is worth mentioning that, in the results of this study on SPSWs with single opening, the effects of frame are included as well.

کلمات کلیدی:

steel plate shear wall, opening, stiffness, strength, finite element nonlinear analysis

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/506459>

