

عنوان مقاله:

Seismic performance and energy dissipation characteristics of perforated trapezoidally-corrugated steel plate shear walls

محل انتشار:

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خلاصه مقاله:

Trapezoidally-corrugated steel plate shear walls (TCSPSWs) is a lateral resisting system primarily used to resist wind and earthquake loadings. (TCSPSWs) are an attractive option for lateral load resisting systems for both new and retrofit construction. There is growing interest in utilizing the corrugated infill plates as an alternative to flat infill in the steel plate shear walls. The factors which make corrugated plates attractive include its energy dissipation capacity, excellent ductility and considerable out-of-plane stiffness, such plates are deemed as viable solutions to flat steel plates in structural members such as steel plate shear walls (SPSWs). This study investigates the effect of perforations on the hysteresis performance of trapezoidally-corrugated steel plate shear walls (TCSPSWs) under cyclic loadings. In this paper, the energy dissipation characteristics as well as cyclic performance of (TCSPSWs) are investigated through detailed numerical simulations. To this end and following the validation of the numerical simulation, numerous finite element models have been developed based on the opening size. The squared-openings are implemented in the center of the infill with areas of 5, 15 and 30 percent of the infills out-of-plane projected area, i.e. span length multiplied by height

کلمات کلیدی:

Steel plate shear wall, Energy dissipation, Trapezoidally corrugated steel plate

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