

Effects of Directivity and Fling Step on Buildings Equipped with J-Hook Sandwich Composite Walls and Reinforced Concrete Shear Walls

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Abstract : The structural systems with the sandwich composite wall (SCSSC) are of very popular due to their ductileness and competency to swallow more energy and power than standard reinforced concrete shear walls. The purpose of this enhanced system is in high-rise building, Nuclear power plant facilities, and bridge slabs are much more. SCSSCs showed acceptable seismic performance under experimental tests and cyclic loading from the points of view of in-plane and out-of-plane shear and flexural interaction, in-plane punching shear, and compressive behavior. The use of sandwich composite walls with J-hook connectors has a significant effect on energy dissipation and reduction of dynamic responses of mid-rise and high-rise structural models. By changing the systems of the building from SW to SCWJ, the maximum inter-story drift values of ten- and fifteen-story models are reduced by up to 25% and 35%, respectively.

Keywords : J-Hook sandwich composite walls, fling step, directivity, IDA analyses, fractile curves

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